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Environmental Issues

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FBIS 50th Anniversary Note

To Our Consumers:

This year the Foreign Broadcast Information Service observes its 50th anniversary.

The service, first called the Foreign Broadcast Monitoring Service, was established in 1941 prior to the U.S. entry into World War II. At the time, a number of U.S. Government officials were concerned about the content of foreign radio broadcasts—a relatively new means of conveying information and propaganda across borders. On their advice, President Franklin D. Roosevelt in late February 1941 allotted money from his emergency fund to institute the recording, translating, transcribing, and analyzing of selected foreign broadcasts for the U.S. Government. During World War II the service demonstrated that monitoring was a fast, economical, and reliable way to follow overseas developments.

Today the Foreign Broadcast Information Service provides its consumers throughout the federal government, according to their diverse official interests, with information from a broad range of foreign public media. FBIS information also is available to readers outside of the government, through the National Technical Information Service. Objectivity, accuracy, and timeliness are our production watchwords.

We members of the current staff of FBIS extend our thanks to consumers for their interest in FBIS products. To past staffers we extend our thanks for helping the service reach this anniversary year. At the same time, we pledge our continued commitment to providing a useful information service.



R. W. Manners
Director

Foreign Broadcast Information Service

Environmental Issues

JPRS-TEN-91-005

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PRC Official Views Washington Climate Meeting

OW0702031491 Beijing XINHUA in English
0208 GMT 7 Feb 91

[Text] Washington, February 6 (XINHUA)—Delegates from many countries called for a flexible, comprehensive and pragmatic convention at the intergovernmental negotiating committee for a framework convention on climate change at two days' meetings here.

Mr. Sun Lin, the head of the Chinese delegation, said today the environment essential for human life has come under growing threat from the activities of human beings themselves. If threats of this nature are to be averted or removed at all, we have no alternative but to take concerted action by way of close cooperation among all the member states of the international community.

Mr. Sun stressed that the protection of the environment, including the protection of the climate, is one of the basic state policies of the Chinese Government. He said China's level of greenhouse gases emission per capita amounts to merely less than the 10 percent of the developed countries, [and that] they have adopted positively all measures within their means to minimize the growth rate of their greenhouse gas emissions.

Climate change is a common concern of mankind, which, he said, needs the concerted action of all the countries in the world to deal with [sentence as received]. He said this is an important point of departure in addressing climate change.

This concerted action cannot materialize without effective international cooperation based on the principle of equity, he said. In such cooperation, the developed countries should make special contribution and provide the developing countries with requisite financial and technologies to enable the latter to participate effectively in international cooperation for dealing with the climate change issue without prejudicing their normal economic development [sentence as received].

Most developing countries are still in the stage of developing their economies primarily to meet the basic needs of their people, he said. Their energy consumption per capita is therefore very low and is expected to grow as their economies develop. This should be taken into full account in the convention, he stressed. At the same time, the developing countries may make greater contribution to protecting the climate, provided their economies see sustained growth and the developed countries extend the requisite financial and technological assistance.

Mr. Sun said "we should adopt realistic and practicable response strategies within our capacities and means on the basis of the best scientific knowledge available. Moreover, the convention should have as one of its objectives the improvement of our knowledge in this regard by establishing an organizational mechanism for further monitoring and research so as to provide a scientifically sound basis for the adoption of further measures."

[The] Japanese representative said the strategy to combat global warming should represent the best option possible, aimed at achieving a balance between environmental protection and stable economic development based on the concept of sustainable development. He said it was also important to promote research activities in order to reduce scientific and economic uncertainties.

[The] Australian representative said a framework convention should be effective in reducing the threat of enhanced greenhouse warming and other human-induced climate change. He said Australia had adopted an interim planning target of stabilizing emissions of greenhouse gases at 1988 levels by the year 2000 and reducing them by 20 percent by 2005.

Some representatives said the convention should be evolutionary to take account of new technological developments, as well as the specific needs of developing countries; others said the principles for a framework convention should be agreed upon at this session of the committee.

Soviet Government Spokesman on Joining UN Ecology Program

LD0802144891 Moscow TASS in English 1439 GMT
8 Feb 91

[By TASS correspondents Aleksandr Kanishchev and Leonid Timofeyev]

[Text] Moscow February 8 TASS—The Soviet government has decided to take part in the Global Resources Information Data base (Grid) at the UN Environment Programme, Soviet Foreign Ministry Spokesman Vitaliy Churkin told a briefing here today.

"We proceed from understanding that global monitoring of the environment is an important element in early forecasts of ecological catastrophes," Churkin said.

He noted that the Soviet Union has always been ready to take part in developing global space monitoring, including in cooperating with other countries in creating an international space laboratory or a manned space station to control the state of the environment.

Churkin said the grid potential will help effectively use advanced methods of collecting, analysing and processing the results of land, aerial and space monitoring of the environment for resolving present ecological problems, including those causing particular concern in the Soviet Union.

Speaking about the 1992 UN Environment and Development Conference, Churkin said a national preparatory committee has been set up in the Soviet Union. The committee has been instructed to coordinate the Soviet Union's participation in the conference.

Soviet First Deputy Prime Minister Vitaliy Doguzhiyev has been appointed to head the committee.

Regional Assembly on Environment To Meet in Bangkok

OW0502083291 Beijing XINHUA in English
0734 GMT 5 Feb 91

[Text] Bangkok, February 5 (XINHUA)—An Asia-Pacific regional assembly on environment, with: "Women and Environment: Partners in Life" as the main theme, will be held here on March 11-15 this year, according to a latest official news bulletin.

The regional assembly will be co-sponsored by the United Nations Environment Program and Canadian International Development Agency and hosted by Thai organizations.

The regional assembly will be the third of its kind.

The first assembly was held in February 1989 in Harare, Zimbabwe and the second in Tunis, Tunisia in February 1990.

The bulletin said the objective of this year's assembly is to enhance women's role in environment management and sustainable development in the region.

At the regional assembly, there will be presentations of success stories or case studies by participants.

The selected success stories together with proposals and recommendations of the regional assembly will be submitted to the global assembly in Miami, Florida, United States scheduled to be held on November 4-8, 1991 and also to the UN World Conference on Environment and Development to be held in Brazil in June 1992, the bulletin noted.

The regional assembly will comprise approximately eighty participants from 15 countries in Asia and the Pacific, with an additional number of resource persons from the UN family, bilateral agencies and from other governmental and nongovernmental organizations.

BOTSWANA

Greenpeace Delegation Investigates Okavango Project

*MB0802210491 Gaborone Domestic Service in English
1910 GMT 8 Feb 91*

[Text] The Greenpeace fact-finding mission into the Southern Okavango Integrated Development Project is expected to wrap up discussions with the government next Tuesday [12 February] by paying a courtesy call on the four ministers responsible for the project.

The four ministers are the minister of local government and lands, Mr. Peter Mmusi, who is also the vice president; the minister of mineral resources and water affairs, Mr. Archibald Mogwe; the minister of agriculture, Mr. Daniel Kwelagobe; and the minister of commerce and industry, Mr. Ponatshego Kedikilwe.

The head of a committee appointed to coordinate the Greenpeace visit, Miss Pelonomi Venson, together with other committee members; the director of water affairs, Mr. Moremi Sekwale; and the deputy director of wildlife and national parks, Mr. Nigel Hunter, today briefed BOPA on the three persons in the international team program.

Miss Venson explained that the committee was appointed to facilitate consultations on the project, as well as due to concern raised about the way consultation of the project has been conducted. The Greenpeace team—Mr. Alan Fountain, Mr. Tony Marina, and Miss Alison Ross—held discussions with their [words indistinct] officials in Orapa today.

It is reported that the Greenpeace team was flown along the Boteti River to see the villages earmarked to be served by the project, from Tsamedupi south of Maun to Mopipi. Next week Monday the team will attend a technical briefing session conducted by the Department of Water Affairs at the Gaborone Sun. The session is expected to be attended by close to four representatives of the Maun community chosen by the local authority and interested organizations.

Among those who will attend the session are the Northwest District Council vice chairman, Mr. (Robert Pebwe), the leader of the Botswana Independence Party, Mr. Motsamai Mpho; the Tawana Land Board secretary, Mr. Stephen Bakwena; and the district officer for lands, Mr. (Lejovan Tervanderhuigen). Others will be representatives of the Maun branch of the Kalahari Conservation Society and the Okavango Conservation Society.

The Greenpeace team is expected to continue its mission after Tuesday's discussion with the four ministers by holding other discussions with private organizations such as the Gaborone branch of the Kalahari Conservation Society.

MALI

Environment Minister on Political Use of Bushfire

*AB0702130491 Bamako Domestic Service in French
1500 GMT 6 Feb 91*

[Text] There has been an upsurge in the number of bushfire incidents in our country. In addition to the traditional motivations of such incidents, some people use bushfire as a political weapon. Environment and Livestock Minister Maffi Kone has been speaking of this new phenomenon.

[Begin Kone recording] [Words indistinct] people wanting to meet their own needs (?set bushfires) and contribute to the destruction of our environment (?and hamper) our struggle against the drought and desert encroachment. In addition to this category of people, there are some who are out to promote their image, win an electorate for themselves, and enhance their popularity. Instead of helping to solve our fundamental problems, these people indulge in inciting the people to persist in their old habits, thus hampering the action of party and government which they refer to as part of a policy of unnecessary harassment [words indistinct].

I must say that our struggle against desert encroachment and bushfire, our reforestation program, and our effort to control water resources are not designed to serve one individual, one government, or one party—the National Union of Malian People. It is a struggle in the interest of all Malians. All Malians should at least be civic-minded and avoid simplistic solutions by joining in the popular drive. I think that [words indistinct] the use of bushfire as a political weapon [words indistinct]. [end recording]

NIGERIA

Petroleum Minister on Alternative Energy Sources

*AB1202183291 Dakar PANA in English 1750 GMT
12 Feb 91*

[Text] Lagos, 12 Feb (NAN/PANA)—The Nigerian minister of petroleum resources, Jibril Aminu, said in Lagos on Tuesday that the government had a policy of developing affordable alternative energy sources as a means of conserving the country's energy resources. Aminu said, while declaring open a three-day workshop on energy development and conservation, that the government was also conserving the resources through judicious use of the revenue derived from them. He said that efforts at increase exploration and development of the country's hydrocarbon industry had yielded remarkable results.

He, however, said that the exhaustibility and foreign exchange-earning capacity of petroleum resources make it imperative to conserve these resources well. The minister said that energy conservation motives had never been strong in our people who have access to those services, adding we must therefore develop and sustain

strong energy conservation motives. The minister was represented by his special assistant, Maduka Ugwu.

In his address, the minister of mines, power and steel, Nura Imam, said people should reciprocate government's policy of expanding energy services through proper energy utilisation. Imam also said that the National Electric Power Authority (NEPA) was embarking on the establishment of a number of mini power generation stations to enhance energy supply. He also said that the ministry was intensifying uranium exploration activities as well as research efforts on solar energy. Sola Kasim, managing director of Skal Energy Studies Group, organisers of the workshop, called for a rational domestic energy development and conservation policy.

SOUTH AFRICA

New Method To Detect Ivory Poaching Developed

91WN0240A Johannesburg SUNDAY TIMES
in English 6 Jan 91 p 7

[Article by Glenda Nevill]

[Text] South African scientists have developed a powerful new weapon in the war against ivory poachers.

By analysing samples of an elephant's tusk, they are now able to pinpoint the area from which the animal came.

Archaeologists Dr. Julia Lee Thorp of the University of Cape Town [UTC] and her project supervisor, Professor Nikolaas van der Merwe of UCT and Harvard University in the United States, have been working on the project for over two years.

Exact

Said Dr. Lee Thorp: "Elephant herds were being wiped out in East Africa and poached ivory was said to be passing through South Africa [SA].

"Someone said it was a pity there was no way to tell poached ivory from the culled variety and we suddenly clicked that we had a potential means to do so, based on our archaeological research into carbon and nitrogen isotopes."

The scientists gathered samples of over 100 tusks from over 20 game reserves in 10 African countries and extracted samples of bone. They converted the samples into carbon dioxide and nitrogen and studied them.

The results showed what kind of food the elephants ate—trees or grass or a mixture of both—and how dense or light the forest covering was.

"This information still didn't give us enough to pinpoint the exact area, so we went one step further and analysed the strontium isotopes present in animals' food," said Dr. Lee Thorp.

Strontium, a soft metallic element, is found in the animal's bones and shows the geological properties of the area.

"Using these three ratios, we were able to place the exact location of the elephant—even to the extent of showing, say, the particular part of the Kruger National Park," said Dr. Lee Thorp.

Professor van der Merwe, professor of scientific archaeology at Harvard University, said he was trying to raise R1-million to do the "laboratory measurements for an elephant database that covers all of Africa in detail."

Vital

SA Nature Foundation chairman John Hanks hailed the new research as "vitally important."

"We will be able to confidently identify ivory and tell whether it is poached or not," he said.

"Although the technique needs refining, these discoveries mean that, if and when the ivory trade opens up again, we will be able to control the trade and prosecute those who continue to poach ivory."

ZAIRE

Government Restrictions Affect Forestry Business

AB1202094191 Dakar PANA in English 1703 GMT
11 Feb 91

[Text] Kinshasa, 11 Feb. (AZAP/PANA)—Zaire lost more than 210 million Belgian francs (about 70 million U.S. dollars) in foreign exchange as a result of government restrictions which affected the forestry industry in 1990.

The chairman of the Committee of Enterprises engaged in the forestry business in Zaire, Mbenza Tubi, said on Thursday that the measures, which banned the exploitation of the wenge black wood in the Lower-Zaire region and the operation of timber trucks, adversely affected the lumbering industry in 1990.

Tubi, however, expressed satisfaction with the ban and the reduction of forestry taxes following negotiations with the Ministry of Environment, Conservation and Nature.

Zairian authorities are currently engaged in debate on wide scale deforestation in the country and the need to adopt a comprehensive afforestation policy among other environmental issues.

OTTAWA CITIZEN Criticizes Environmental Review Process

91WN0228A Ottawa THE OTTAWA CITIZEN
in English 22 Dec 90 p B6

[Text] So much for the environmental review process. Alberta will allow the building of a giant, \$1.6 billion pulp mill despite worries and warnings of a joint federal provincial environmental review panel that the effluent from the mill could pollute the Athabasca River system.

Back in Ottawa, Federal Environment Minister Robert de Cotret appears to have caved in. The federal government will not block the project.

At stake, of course, are jobs. Making the announcement this week, a proud Premier Don Getty made clear where his loyalties lie by boasting that the mill will create 1,300 jobs. "This project is not about buildings. It is about people and jobs for people."

The controversial megaproject, to be built by the Japanese-controlled Alberta-Pacific Forest Industries, will produce pulp for high-quality paper that is used in magazines and books. As a result of the environmental review process the company decided to use less chlorine in its production which it claims would cut dangerous emissions to one-fifth of the original proposal.

Based on these untested claims, the provincial and federal governments apparently now believe it's fine for the company to go ahead. There are to be no more outside assessments.

Adding insult to injury the Alberta government has sweetened the pot for the Japanese company: increasing its original financial subsidy package by \$25 million to \$400 million. This is, of course, to compensate for the two-year delay caused the company by that pesky environmental review process.

The go-ahead for the Alberta mill becomes even more cynical upon examination of the broader picture. Environment Minister de Cotret has proposed new legislation that would create hundreds of environmental review panels such as the one that studied the pulp mill proposal. But the panels don't arise from environmental consciousness; they are an end run around the stringent environmental guidelines the government is now being forced to follow by recent court decisions.

And what does the federal government's decision on the Alberta pulp mill indicate about how seriously it will regard these future panels? Not very.

Indeed what is the point of setting up such a process when provincial and federal governments merely thumb their noses at it.

What's the point?

Environmental Study Paves Way for Quebec Hydro Project

91WN0227A Toronto THE GLOBE AND MAIL
in English 22 Dec 90 p A5

[Article by Andre Picard]

[Text] Montreal—Hydro-Quebec has made public an environmental study which, if accepted by two government-appointed committees, will pave the way for the construction of \$755-million of infrastructure, the first step in the completion of the controversial \$6-billion Great Whale hydroelectric project.

The Crown utility said in a technical study made public yesterday that the construction of 575 kilometers of roads and two airports in barren Northern Quebec would have minimal effects on the environment and that the Cree and Inuit would ultimately benefit from opening up the land although their traditional life-styles would be affected.

Hydro-Quebec says that the most serious effect of construction would be the noise of equipment, which would scare wildlife and disrupt migration patterns. Some fragile habitats would be disrupted, but the effect would be minimized by more than \$13-million spent in remedial measures, the utility promised.

Hydro-Quebec said the traditional life of natives in the area, which covers one million square kilometers, could change markedly with road access, but promised to establish a control post and restrict access to residents and construction crews. The report said the new roads and airports would lower food and fuel costs and give easier access to traplines and hunting grounds.

Under the provisions of the 1975 James Bay and Northern Quebec Agreement, the report must now be reviewed by two environmental committees that have native members. The law gives the Cree 45 days to review the recommendations, and the Inuit 90 days. The majority of members on both committees are government appointees, so swift approval is anticipated.

Grand Chief Matthew Coon-Come, leader of the Grand Council of the Crees of Quebec, has said repeatedly that natives are opposed to further hydroelectric dams in the North. Further, the Crees believe that the environmental effects of the Great Whale project must be examined as a whole, and that examining the impact of the roads and airports in isolation is useless.

The Great Whale hydroelectric complex, to be completed in September 1999, would produce 3,168 megawatts of power. It would flood nearly 4,400 square kilometers of land and divert five rivers, cutting the flow of the Great Whale River by 75 percent.

In the first phase of the James Bay project, flooding caused widespread mercury contamination of fish, the staple food of natives. Road and airport access led to widespread social problems such as alcoholism and drug

abuse, but the almost \$2-billion in compensation payments have allowed communities to develop modern health and education programs and encouraged the Crees and Inuit to return to traditional pursuits such as hunting and trapping.

The roads system proposed by Hydro-Quebec to permit construction of Great Whale would include extending the Matagami highway 240 kilometers north from La Grande 2 to Great Whale 1, a 295-kilometer stretch from Great Whale 1 to the Bleinville reservoir, and another 40 kilometers linking the villages of Whampagoostui and Kuujuarapik to the provincial highway system. The Crown utility would expand and rebuild the Kuujuarapik airport and build a new airport at Great Whale 2 and a temporary airstrip at Lac Fagnant.

If construction begins, as scheduled, in April, the infrastructure would be complete by the spring of 1993. It is estimated that a total of 185,800 workers would be required to complete the Great Whale project.

After a lengthy battle with Quebec, the federal government agreed last month to allow the province to assess the environmental impact of the infrastructure separately from that of the dams. There is still no agreement, however, on the form of review for the dams themselves, though environmentalists and natives are insisting on wide-ranging public hearings.

Scientists Report Great Lakes Retaining Worst of PCB's

91WN0226A Windsor THE WINDSOR STAR
in English 28 Dec 90 p D5

[Text] Toronto (CP)—Scientists have made disturbing new discoveries about toxic chemicals in the great Lakes.

Although levels of toxic chemicals are dropping steadily, the damage they do to living creatures is declining much more slowly, says Mike Gilbertson, a senior biologist at the International Joint Commission.

The findings suggest optimism about the Great Lakes cleanup is premature and cast doubt on studies into the extent and health impacts of chemical contamination.

Although the issue is still debated, the problem appears to lie with polychlorinated biphenyls (PCBs), say Gilbertson and Andy Gilman of the Federal Health and Welfare Department.

While total levels of PCBs continue to decline, those that remain contain an increasingly high proportion of the dangerous types more quickly absorbed by birds, fish and animals.

"All the monitoring of PCBs in the last 20 years was virtually wasted" because studies did not measure each type of PCB separately, Gilman says.

Ironically, the falling amounts of less-toxic PCBs may increase risks from the more dangerous PCBs, dioxins, furans and other toxic chemicals, scientists say.

That's because the less-toxic PCBs counteract harmful effects of the deadlier poisons, which have caused cancer and birth defects in laboratory animals.

The new findings mean PCB cleanups should be increased dramatically, Gilbertson said.

Because the research is new, it carries an aura of uncertainty and won't be taken into account when the health and welfare department issues a major report in January on health implications of Great Lakes pollution, he warned.

It was partly because of this new information about PCBs that University of Guelph scientist John Leatherland recently advised against eating any Great Lakes fish.

World Bank Loan To Support Beijing Environmental Program

40101005B Beijing CHINA DAILY [BUSINESS WEEKLY] in English 17 Dec 90 p 1

[Article by staff reporter Jiang Xiaoyun]

[Text] The World Bank will grant \$100 million in an interest-free loan to support environmental protection efforts for Beijing.

The programme, first drawn up in October 1988, has now entered a substantive stage, according to Zheng Yuanjing, deputy director of the Beijing Municipal Environmental Protection Department.

The World Bank has sent a delegation to examine the feasibility studies on the project made by the department.

"If everything proceeds smoothly, lending will start in the second half of next year," Zheng said.

The loan will have a maturity of 35 years with repayment starting from the 10th year, Zheng added.

The loan will be used to construct a package of pollution-control projects, including two sewage treatment projects, one central heating project, some industrial waste treatment projects and one garbage disposal facility which can treat 2,000 tons of garbage daily, one-fourth of the city's total.

These projects will need about 1.7 billion yuan (\$326 million), part of which will be provided by the municipal government and factories concerned, Zheng said.

Meanwhile, Beijing will build an antinoise pollution project, a sewage disposal facility, a coal washery and a gas project next year.

Nonpolluting production, started in the 1970s in China, is given the same importance and attention from the government as that given to family planning, both being viewed as major national policies.

Zheng said Beijing spends more than 100 million yuan to deal with industrial pollution a year and has seen a visible drop in the amount of industrial waste in the past few years.

The amount of poisonous heavy metals discharged together with water effluents has dropped by 80 to 90 percent compared with 10 years ago.

But pollution caused by the urbanization is increasingly serious because of the dense population, rising living conditions and backward public environmental protection facilities.

With heavy indebtedness and a shortage of financial resources, an immediate all-round improvement of the

environment is beyond the city's capacity, and Beijing needs foreign technical and economic assistance, Zheng said.

During the past few years, Beijing used loans from Germany and Japan for sewage disposal projects, loans from Asian Development Bank for scientific research of drinking water for Beijing and Tianjin and loans from Britain for the programme to harness the Qinghe River.

New Shanghai Project To Clean Air

40101005A Beijing CHINA DAILY [SHANGHAI FOCUS] in English 26 Nov 90 p 1

[Article by staff reporter Chen Qide]

[Text] The city's largest piece of equipment in environment protection has been put into operation this month.

The establishment of the carbon tetrachloride project will help the city to obtain more important chemical raw materials as well as curb pollution, said Wang Shufang, an engineer in charge of the construction.

According to Wang, the new equipment can offer the domestic market 10,000 tons of carbon tetrachloride, 5,000 tons of ethylene tetrachloride and 36,000 tons of industrial hydrochloric acid.

Carbon tetrachloride is the key material for refrigeration while the other two chemicals can be used in the electronics, leather and metal processing industries.

With advanced technology from the American Science Design Company and machinery from the Italian Tecimont Corporation, the new equipment makes full use of waste water and gas as raw materials in addition to ethylene and chloride.

"Thus about 5,000 tons of waste from vinyl chloride and polyvinyl chloride equipment can be used in the products," said Wang.

The carbon tetrachloride plant, which took 16 months to build, cost more than 44 million yuan and has an area of 2.4 hectares.

The engineer said the project marks the completion of Wujing's four main projects connected with the city's 300,000-ton ethylene project in Jinshan.

The other three comprise 150,000 tons of iron membrane soda equipment, 200,000 tons of vinyl chloride and 200,000 tons of polyvinyl chloride equipment.

The project is the fifth such project in China and is the last of four such installations imported from Japan in 1978.

With a total investment of 1.73 billion yuan, the 300,000-ton ethylene project represented the local government's largest investment.

Since its operation last March, the project has turned out 36,157 tons of poly-vinyl chloride, 41,115 tons of vinyl chloride and 44,846 tons of iron membrane soda.

To date, about 10,000 tons of iron membrane soda and 4,400 tons of polyvinyl chloride have entered the international market, putting an end to the country's heavy imports from abroad, said Gu Zhenli, deputy head of the project's headquarters at the Shanghai Chlor-Alkali Complex.

Ministry Sets Targets for Forestry Development

OW0902113091 Beijing XINHUA in English
1018 GMT 9 Feb 91

[Text] Beijing, February 9 (XINHUA)—China plans to add 31 million ha of forest in the coming decade and try to make tree growth surpass timber consumption.

Minister of Forestry Gao Dezhan said that China will continue its efforts to increase forest areas with the cooperation of the general public and the introduction of new science and technology.

He said China's forest areas have grown markedly in the past few years, as the country now has 125 million ha of forest, 30 million of which are man-made forests, a world record. Forest coverage has been increased to 12.98 percent from 12 percent in the early 1980s.

To meet the targets for the coming decade, the minister said, China will strictly abide by the timber-cutting limit set by the State Council early this year. The limit confines China's annual cutting of forests within 243.6 million cu m in the next five years.

Meanwhile, efforts will be made to increase forest areas by mass planting of trees and sowing seeds by planes and closing hillsides to facilitate tree growth, the minister said.

According to Gao, the Ministry of Forestry wants to invest 2.5 billion yuan in the next five years to carry out technical innovation programs and projects concerning forestry infrastructure construction.

The ministry has also planned to push the afforestation-through-technology-application rate from the existing 30 percent to 50 percent in the coming five years, and to 70 percent by the year 2000. Additional goals such as limiting the outbreak of forest fires to within one percent of the present figure and pushing the insect damage prevention rate to 50 percent in the year 1995 and 70 in the year 2000 are also included in the ten-year forestry development program, the minister said.

Southern Provinces Plan Reforestation Projects

OW0902101091 Beijing XINHUA in English
0929 GMT 9 Feb 91

[Text] Beijing, February 9 (XINHUA)—Most southern Chinese provinces are gearing up to plant more trees with the arrival of spring.

According to the latest statistics from the Ministry of Forestry, Hunan, Hubei, Jiangxi and Fujian Provinces and the Guangxi Zhuang Autonomous Region have planted 320,000 ha of trees so far this year and leveled 1.4 million ha of land for planting new trees, making up 28 percent and 98 percent of the year's targets, respectively.

A ministry official said over 5.6 million farmers have joined in the spring planting of trees in Hunan Province alone, and Jiangxi Province has planted 160,000 ha of trees since the beginning of this spring.

Fire Damage to Grasslands Greatly Reduced

HK1102020691 Beijing CHINA DAILY in English
11 Feb 91 p 3

[By staff reporter]

[Text] Fire damage to grassland has been cut sharply in recent years thanks to increased fire prevention efforts, an official from the Ministry of Agriculture told CHINA DAILY yesterday.

Since 1987, the Ministry of Agriculture has used satellite twice a day to check grassland, according to the official, who said local governments were informed immediately of any fires.

The ministry had issued regulations to take good care of fire-fighting resources, while the government had invested 2.5 million yuan (\$480,000) in 1989 and 4 million yuan (\$770 million) in 1990 in fire prevention in grassland areas, the official said.

The result was that the average number of fires in the past three years had been reduced to 482, a decrease of 63 percent compared with the average for the 38 years before 1987.

The acreage of grassland damaged by fires had been cut to 500,000 hectares, 89 percent less than before 1987, and economic losses had dropped to 9.8 million yuan (\$1.9 million), 30 percent down on the average for the previous 38 years, the official said.

The huge forest fire in 1987 in the Daxinganling Mountain area which spread through one million hectares of trees spurred local governments to adopt fire-prevention measures.

Officials said the ministry was worried about grassland fires because of the adverse effect on the lives and production of people living in the areas.

Winter and spring fires caused more damage to animal husbandry areas, they said, because fires left the animals with nothing to feed on.

Despite the considerable finance provided by the government in the last two years, officials said there was still a lack of funds and fire-fighting equipment remained backward.

At a recent meeting held in Harbin, Vice-Minister of Agriculture Chen Yaobang said fire prevention in grassland areas was vital for the security of local people's property and grassland resources.

The vice-minister urged local governments to strengthen management of fire prevention by issuing further regulations.

In the 38 years to 1987, there were an average of 1,300 fires in grassland areas, destroying 5 million hectares of grass each year and causing losses of 14 million yuan (\$2.7 million).

REGIONAL AFFAIRS

Japan Hosts Regional Sea Pollution Conference*OW0502050291 Tokyo KYODO in English 0342 GMT
1 Feb 91*

[Text] Tokyo, Feb. 5 KYODO—Experts from Japan and six other Asian nations opened a three-day conference Tuesday to discuss ways of preventing sea pollution in the Asia-West Pacific region.

The meeting, hosted by Japan's Maritime Safety Agency, is being attended by experts from, besides Japan, Indonesia, Malaysia, South Korea, China, Thailand, and the Philippines.

Following a keynote speech by Tomotoshi Okaichi, a professor of Kagawa University, participants reported on pollution of the seas around their countries and the measures taken to combat it.

During the three days of the conference, the experts will discuss ways to prevent sea pollution in the Asia-West Pacific region based on research conducted by Japan in the area.

The marine environment in the area has reportedly been worsening because of increasing discharges of waste water from factories and households into the sea, agency officials said.

According to the agency, the amount of cadmium detected in the water in Jakarta Bay is 16 times the standard set by the government in Japan.

The officials said the Maritime Safety Agency is also considering organizing after the conference a joint research team of the participating countries to carry out studies in the Asia-West Pacific region.

JAPAN

Officials Say Cooling System Halts Fukui Nuclear Accident*OW0902140491 Tokyo KYODO in English 1304 GMT
9 Feb 91*

[Text] Fukui, Feb. 9 KYODO—Abnormal levels of radioactivity were detected in part of a nuclear reactor here Saturday, automatically shutting down the reactor and triggering its emergency core cooling system (ECCS), officials said.

No damage was caused to the environment by the incident at Kansai Electric Power Co.'s No. 2 reactor at Mihama Nuclear Power Plant in Fukui Prefecture, they said.

No workers at the plant were endangered by the accident, Fukui prefectural government officials said. Kansai Electric Power is based in Osaka.

This was the first time in Japan that the ECCS, which pours a huge amount of water into a reactor's core, had started up while a reactor was malfunctioning, although it had started up by mistake three times in the past, officials at the Natural Resources and Energy Agency said in Tokyo.

Kansai Electric officials said there was no change in radioactivity levels recorded outside the plant. But local antinuclear activists claimed the pressurized water reactor, of a type developed by Westinghouse Corp. of the United States, must have released invisible radiation.

Agency officials said the 500,000-kilowatt reactor began showing abnormal radioactivity readings in its secondary cooling system at 1:40 p.m., when the reactor was operating at maximum capacity. Plant workers manually started to reduce output, but the reactor automatically stopped at 1:50 p.m. and the ECCS kicked in.

In this type of reactor, water heated by the reactor's core flows through thin tubes, heating the surrounding water into steam. The steam flow through the so-called secondary cooling system and turns the turbine, generating electricity.

Agency officials said they suspect some radioactivity flowed into the secondary cooling system.

The 2.2-centimeter tubes, with walls just 1.3 millimeter thick, play a key role in the reactor's steam generator, or heat exchanger, which is regarded as the weak point of a pressurized water reactor.

The officials said they suspect some of the fine tubes were somehow damaged, causing air pressure in the exchanger to fall, setting off an alarm and the emergency cooling system.

Atomic energy expert Sanshiro Kume, a former professor at Osaka University, called the accident serious. He said he suspects at least one of the 7,000 thin tubes in the steam generator had burst.

Damage has been reported several times recently to such fine tubes at other Kansai Electric plants in Fukui Prefecture, forcing the bypassing of some of the tubes, agency officials said.

Some 400 tubes have been bypassed so far at the Mihama No. 2 reactor itself, they said.

Because of such damage, Kansai Electric has decided to replace the generators at two reactors in the prefecture, the officials said.

Kiyoshi Yoshimura, leader of a civic group opposing some types of nuclear reactors, said it was certain that radioactivity was released outside the plant.

He said the accident proved the group's claim that the steam generator is unsafe and defective. Yoshimura said

his group, based in Tsuruga near the plant, will insist on a strict review of the device's safety.

Nuclear Plant's Radioactivity Leakage Accident Detailed

OW1002140891 Tokyo NHK General Television Network in Japanese 1000 GMT 10 Feb 91

[Text] A thin tube in a steam generator on the No. 2 nuclear reactor at the Mihama Nuclear Power Plant in Fukui Prefecture was damaged yesterday, triggering an emergency core cooling system into action. In connection with this accident, Kansai Electric Power Company, which owns the power plant, formally acknowledged today that, although there is no fear of the leakage affecting the atmosphere, an extremely small quantity of radioactive matter had been released into the atmosphere.

The accident occurred at the Mihama Nuclear Power Plant in Mihama Town, Fukui Prefecture, yesterday afternoon. A thin tube in a steam generator on its No. 2 nuclear reactor was damaged, causing some of its primary cooling water to be lost and triggering an emergency core cooling system. As a result, a large quantity of water, which cools the fuel rod and other devices in the nuclear reactor, poured into the reactor itself.

Kansai Electric today made clear that there was no change at all in the level of radioactivity in the atmosphere before and after the accident. The company also disclosed the quantity of radioactive matter released into the atmosphere.

According to the company, the radioactive matter released into the atmosphere was a very small quantity, 0.134 curies. This includes waste water from the air ejector on the condenser, which converts steam into water after turning the turbine, from an auxiliary building where turbines and condensers are installed, and from a pressure escape valve on a pipe, which sends secondary cooling water to the turbine.

According to the Science and Technology Agency, this quantity is equivalent to the amount of radioactive matter released for two to three days from a nuclear reactor operating normally. It is said that there is no fear at all of this quantity affecting the atmosphere in and around the area.

Meanwhile, the Fukui prefectural government said that the damaged thin tube on the steam generator is one of 3,620 tubes and, judging from the quantity of primary cooling water that leaked into the secondary cooling water system, there is a strong possibility a large, two cubic centimeter hole was opened on a tube, which is 2.2 centimeters in diameter.

Kansai Electric plans to begin work tonight to extract the primary cooling water from the steam generator in which the accident occurred, and to send workers inside the

steam generator sometime tomorrow, at the earliest, to confirm which thin tube was damaged.

It also plans to extract water from the secondary coolant system on the steam generator, and take out the damaged thin tube on or about 17 February, at the earliest, to determine the extent of the damage and the cause of the trouble.

Increased Opposition to Nuclear Power Expected After Accident

OW1202141291 Tokyo KYODO in English 1215 GMT 12 Feb 91

[Text] Tokyo, Feb. 12 KYODO—Officials at the Ministry of International Trade and Industry (MITI), confident that Saturday's accident at the Mihama Nuclear Power Plant caused no damage to the environment, are concerned about another kind of possible fallout—an increase in public opposition to nuclear power, ministry sources said Tuesday.

Plant officials said the amount of radioactivity released in the accident was not enough to harm people living nearby, but the MITI officials are worried that the accident may nonetheless cause renewed public skepticism about nuclear power.

The reactor was shut down, and the plant's emergency core cooling system (ECCS) activated, averting a possible meltdown, after an abnormal level of radiation was detected.

This was the first time in Japan the ECCS has come into operation during an accident, although the system has been activated mistakenly three times.

The accident will "undoubtedly intensify concerns about nuclear power among the public," admitted an official of the Agency of Natural Resources and Energy. The MITI-affiliated agency is responsible for the administration of Japan's nuclear power plants.

"It is quite important to clarify the cause of the accident, and explain it straightforwardly to the public to regain confidence in nuclear power plants," he said.

Kansai Electric Power Co. officials said damage to the plant's steam generator allowed radioactive water to flow from the system that cools the reactor's core to the so-called secondary cooling system, which produces steam to drive a turbine, generating electricity.

MITI Minister Eiichi Nakao may order ahead-of-schedule examinations of Japan's other reactors similar to the Mihama plant, he told the Budget Committee in the House of Representatives.

There are 16 pressurized light-water reactors nationwide in addition to the No. 2 reactor at the Mihama plant in Fukui Prefecture.

Nine of the 16 reactors are now in operation, with the other seven temporarily shut down for regular checkups.

For MITI, the accident was a serious blow to its long-term energy supply policy, which depends heavily on nuclear power.

Under the long-term energy supply outlook MITI released last October, nuclear energy is projected to account for 16.9 percent of the nation's energy supply in 2010, up from 8.9 percent in 1989.

Raising Japan's dependence on nuclear power to that level will require 40 new megawatt capacity nuclear plants by 2010.

Even before the Mihama accident, the government was hard put to find sites for the new plants in the face of the deep-rooted opposition among members of the public to having nuclear plants in their own neighborhoods, even if they support nuclear power in principle. Only 14 sites have been named so far for the new plants.

While the MITI officials made it clear that they have no intention of changing their energy policy, they are bracing for tougher calls, even from governmental panels, for stricter safety measures at the plants.

Meanwhile, business circles have displayed their firm commitment to increasing the share of nuclear power in the nation's energy supply.

The chairman of the Federation of Economic Organizations (Keidanren), Gaishi Hiraiwa, said Japan has no choice but to depend on nuclear energy.

"Through the best possible efforts to augment the safety at plants, we should try to eliminate concerns over further accidents," he told a news conference.

"I breathed a sigh of relief to hear that the emergency core cooling system worked (at the Mihama plant). But the cause of the accident must be made perfectly clear," he added.

PHILIPPINES

Administration Declares Prolonged Dry Spell Drought

HK0502040891 *Quezon City MALAYA in English*
5 Feb 91 p 1

[By Carlito Pablo]

[Text] The Philippine Atmospheric, Geophysical and Astronomical Administration yesterday issued Drought Advisory No. 1, ending the debate whether the country is suffering from a drought or only a "prolonged dry spell."

The advisory was handed to government agencies so they could prepare for the full impact of the more than three-month long lack of rains which has already destroyed millions of pesos worth of crops in Visayas and Mindanao.

Administrator Roman Kintanar of PAGASA said the current drought could be more severe than the seven-month drought which hit the country last year.

The drought has so far destroyed P637.8 million worth of rice and corn crops in the Visayas and Mindanao.

"Present, general atmosphere in the regions suggests the existing dry spell may persist in many parts and concerned government agencies are advised to take appropriate measures to mitigate the potential adverse impact of the drought on food, water resources, energy, and other," Kintanar said.

He said most parts of the country experienced relatively less rainfall last month, compared to the same period last year.

Kintanar also said only the eastern sections of the country can expect significant rainfall in the coming months.

He added the recorded rainfall levels since last November were less than 50 percent of normal precipitation.

He also said most rainfed crops are likely to suffer crop failure or reduced yield.

Meanwhile, cloudseeding operations in Cagayan Valley are set to start today to save some 10,000 hectares of crops suffering from severe moisture stress. An Air Force C-130 will conduct the operation.

Officials said cloudseeding is in full swing in the Visayas and Mindanao.

THAILAND

Cabinet Gives Assent To Build Controversial Dam

BK1302013591 *Bangkok BANGKOK POST in English*
13 Feb 91 p 3

[Text] The Cabinet yesterday gave the green light to the Electricity Generating Authority of Thailand (EGAT) to build the controversial Pak Mun Dam in Ubon Ratchathani.

The dam scheme has enraged conservationists in its short, but stormy history.

Cabinet approval of the project confirmed an earlier ruling on May 15 last year allowing EGAT to build the multi-purpose dam at a cost of about 3,880 million baht. The dam is capable of generating 136 megawatts of electricity to supplement the power needs of the north-eastern region.

A 125-rai plot of land in a national park will be allocated for the site of the dam in Khong Chiam District.

EGAT's plan to build the Pak Sun Dam has been stalled since 1989, when villagers and conservation-conscious students voiced opposition against the project.

They claimed the dam would damage the environment and cause loss of natural resources, particularly the Kaeng Tana and Kaeng Saupe Islets, which are two of Ubon's main tourist attractions.

Several protests and counter-protests were held during the past two years.

In April last year, opponents of the dam gathered in front of Chitralada Palace to petition His Majesty the King.

REGIONAL AFFAIRS

Hungarian Government To Negotiate New Gabčíkovo-Nagymaros Agreement

AU0802111091 Budapest MTI in English 1311 GMT
7 Feb 91

[Text] Budapest, 7 February (MTI)—At its Wednesday session, the Committee on Environmental Protection of the Hungarian Parliament accepted a draft proposal, defining the government's tasks concerning the Gabčíkovo-Nagymaros water barrage. Accordingly, Parliament asks the government to immediately launch talks with the government of the Czech and Slovak Federal Republic on terminating the interstate agreement on the Gabčíkovo-Nagymaros water barrage project by mutual consent. The Hungarian Government will have to initiate the conclusion of a new interstate agreement on protecting the ecological and natural assets of the region—first of all its drinking-water reserves—on preventing flood, and on providing appropriate conditions for navigation.

Under another draft proposal accepted by the committee, Parliament will have to ask the government to initiate the conclusion of a new Danube agreement with the governments of the countries concerned. Under the proposal, the Hungarian Parliament should propose that Austria, the Czech and Slovak Federal Republic, and Hungary establish a joint national park along the Danube.

Danube Circle Environmental Demonstration Held in Budapest

LD0902184891 Budapest MTI in English 1624 GMT
9 Feb 91

[Text] Budapest, February 9 (MTI)—The Danube Circle organized a demonstration in Budapest on Saturday, to protest against the construction of the Gabčíkovo power plant, the use of nuclear energy for energy production, the environmental protection policy carried out to date, and to call for the protection of the Danube River's wildlife.

Some 250 people participated in the demonstration. Janos Vargha, leading activist of the Danube Circle, and Zoltan Illes, former deputy secretary of state for environmental protection, addressed the rally. Both stressed the importance of environmental protection, and noted that no concrete measures were taken in the past period, in spite of the various promises made, to stop the construction of the Gabčíkovo-Nagymaros barrage.

The speakers also said new dams should not be built either on the Drava or the Tisza Rivers. They also protested against the expansion of the Paks Nuclear Power Plant, and the building of a new nuclear power plant.

Gunter Schobesberger, addressing the rally on behalf of Austrian environmentalists, called on participants to

cooperate in attaining the various environmental protection goals. Following the demonstration, the organizers held a press conference. Zoltan Illes said energy rationalization can be the problem [as received] to the country's energy problems.

CZECHOSLOVAKIA

MAPE Uranium Plant Scales Down Production

AU0802154291 Prague CTK in English 2134 GMT
4 Feb 91

[Text] Prague Feb 4 (CTK)—A uranium ore treatment plant in South Bohemia, accused by the Austrian Greenpeace branch last year of causing radioactive contamination, is changing its program to increase engineering production and scale down its chemical operations.

Under a Czechoslovak Government decision of last December, uranium industry operations are to be discontinued step by step by the end of next year.

The MAPE plant in Mydlovary, 12 kilometers from the South Bohemian regional capital of Ceske Budejovice, is to process 106,000 tonnes of ore this year, some 600,000 tonnes less than in 1981.

This year MAPE will produce 7,000 tonnes of iron sulfate for the treatment of waste and drinking water and this quantity should about treble in the next four years. It has also started making containers.

Austrian Greenpeace environmentalists have been demanding the plant's closure on the grounds of radioactive contamination since the beginning of last year. In November, local environmental authorities admitted the existence of a wild dump showing higher radioactivity than the surroundings. However, it did not pose health risks, they said. It is believed that the unauthorized dump, which could not be explained, dated probably from the 1960's, the decade when the plant began to be used for the treatment of uranium ore and produce chemical uranium concentrate.

HUNGARY

Environmental Official on Nuclear Power Expansion, Waste Disposal

91CH0255A Budapest NEPSZABADSAG in Hungarian
7 Dec 90 p 5

[Interview with Dr. Zoltan Illes, deputy state secretary of the Ministry of Environmental Protection and Settlement Development, by Agnes Federer: "On Elijah's Chariot—What Will Happen to the Radioactive Waste?"; place and date not given—first paragraph is NEPSZABADSAG introduction]

[Text] These are turbulent times for Hungarian environmental protection. Virtually no day goes by without

some kind of a scandal, catastrophe prediction, interpersonal conflict, or resignation coming to light. Even before one controversy is resolved, another begins to unfold. This is why we have asked to talk with Dr. Zoltan Illes, deputy state secretary of the Ministry of Environmental Protection and Settlement Development.

[Federer] A few days ago an interesting article appeared in the Austrian paper PROFIL. It claimed, among other things, that the French state enterprise, Energie de France, would be building the two newest blocks of the Paks Nuclear Power Plant. Could you clarify for us what the actual situation is, and what we can expect with respect to nuclear energy in Hungary?

[Illes] As far as I know, the government has not made a final decision about going ahead with these two blocks. Undoubtedly, there is a lot of "brainwashing" going on. In other words, there are certain circles, particularly the nuclear lobby, that are trying to convince the people of this country that they need nuclear power plants. Few people realize that the half-life of radioactive waste materials is at least 800-900 years. In other words, every bit of waste presents hundreds of years of serious threat to the environment. We must also be mindful of the possibility of a catastrophe resulting from overloaded and fatigued elements that may cause a crack in the concrete wall. When that happens, radioactive materials can easily escape, and under a worse scenario may even cause an explosion. Everywhere in the world they have special funds set aside for financing the reparation of the disastrous consequences of possible nuclear power plant catastrophes, for example, for the relocation of the populace. No one knows exactly how much Hungary's energy needs will increase in the future. Obviously, the argument from Paks is that the electric energy that they produce will be in great demand, hence development is well justified. Unfortunately, the technologies that are imported from West Europe are not state of the art. It is true that we are getting them at a relatively good price, but always with the following comment: "It is still better than what you are using now." Such attitudes portend potentially very dangerous consequences. We should also remember that after 1992, when our agreement with the Soviet Union expires, we will simply have no place to put our radioactive waste. I have heard that the experts are looking into the possibility of getting certain developing countries to take these materials off our hands, naturally for a sizable fee, in order to rid our country of the dangers they entail.

[Federer] What solution would you recommend?

[Illes] Our ministry has recently completed an interesting study. In Hungary there are a million, rather antiquated, black and white television sets, each tapping the network for 350 watts of electricity. In the stores, incidentally, there are sets available at a relatively low price that use only 50 watts and are far more modern. The energy consumption of these one million sets equals the total capacity of one block of the Paks Nuclear Power Plant. Hence, I would argue that the solution lies not so much

in focusing on cutbacks in use as in promoting modernization in all spheres of life. By doing so we could reduce our energy needs by at least 40 percent. We should also not forget about the potentials of bioenergy, which have been attracting more and more attention. There is merit to the notion that the future belongs to small power plants designed to meet the energy needs of individual cities.

[Federer] What about Bos-Nagymaros?

[Illes] Well, this is also related to nuclear energy. Everybody is happy that we have been able finally to come to an agreement with the Austrian side. It appears that negotiations will also soon be getting under way with the Czechoslovak Government, and there is a good hope that they will accept our proposed solution that will allow them to complete construction of the Bos plant, but operate it only at basic capacity. On the Hungarian side, we could begin restoration of the affected area. I want to stress that these are only plans for now. However, we seem to have completely forgotten about the fact that we had promised to provide Austria with electric energy starting in 1995, which will have to be produced somewhere. This brings us back to the nuclear power plant issue. One reason why it would be in the interest of the water lobby to complete the Nagymaros power plant is that it would provide jobs for many people. Hungary has not had any serious floods for years, so our water experts feel that their expertise is not being utilized.

[Federer] To my knowledge Hungary also has a few coal-fueled power plants as well. What will happen to these?

[Illes] In five years, they will be due for some serious renovation. The money that is currently being spent on expanding the Paks facility could be just enough to cover the cost of those renovations. Incidentally, I have also heard that the French would even be willing to build those two new blocks on credit. In exchange, we would pledge to buy additional technologies from them. This may become even easier in light of the fact that only recently the Ministry of International Economic Relations has submitted a draft proposal to the government recommending the complete liberalization of foreign trade. What this means is that if Western technology can be brought in freely, practically no one will be able to determine whether or not this technology may be harmful to the environment. This is one reason why we are doing everything we can to establish a green COCOM [Coordinating Committee on Export Controls of NATO] list. What this means is that the introduction of certain processes and technologies will always require a permit which could not be issued without an environmental impact study.

[Federer] How do you expect the reshuffling of the government to affect you?

[Illes] I believe that our ministry will also undergo some big changes, perhaps starting at the level of the deputy state secretary....

Government Reports No Excessive Atmospheric Radiation Detected

*LD0702201191 Budapest MTI in English 1850 GMT
7 Feb 91*

[Text] Budapest, February 7 (MTI)—The chief of staff of the nuclear accident prevention government committee has given the following information to MTI:

Rumours have been circulating and causing alarm to the population of eastern Hungary, to the effect that precautionary measures are being introduced in Subcarpathia, mainly to protect children, because of a radioactive cloud of unknown origin which has increased radiation to five times the permitted level.

The Hungarian authorities have received no such information as part of the agreement on rapid notification of nuclear accidents. In a special initiative on Thursday, the committee's secretariat, in cooperation with experts from the national radiological-biological research institute, took counts of the radiation in the Hungarian territory neighbouring Subcarpathia. The counts revealed that the radiation there was no higher than nationwide.

POLAND

Principles, Priorities of Newly Approved State Ecological Policy

*91WN0183A Warsaw PRZEGLAD TYGODNIOWY
in Polish No 50, 16 Dec 90 p 7*

[Article by Agnieszka Oledzka: "Natural Business"]

[Text] In mid-November, the Council of Ministers approved the document presented by the Ministry of Environmental Protection, Natural Resources and Forestry entitled: "State Ecological Policy." The document is a declaration of ecodevelopment. The fulfillment of the desiderata contained in it constitutes the ecological prerequisite for "Poland's entry into Europe."

It departs from traditional, narrowly understood environmental protection in favor of having economic needs as well as society's and state aspirations conform to the possibilities offered by the environment. It discards centrally controlled processes of subjugating nature that dominated in past years. It proposes the introduction of principles observed in market economies of economically developed nations.

The basis is the principle of taking responsibility by those who make use of the environment for the consequences of their activity. This pertains to each citizen as well as to enterprises and institutions. The introduction of an entire system of fees intended for the regeneration

of devastated wildlife as well as fines and damages for crimes against the environment are being proposed. At the same time, the institution of fines will remain in its present form only with respect to one-time offenses due to malfunctioning. [Additional penalties] other than financial sanctions will be placed upon chronic offenders.

The principle of law and order denotes the necessity of reconstructing Polish ecological law in a way that would make it impossible to circumvent it in the name of "higher necessities" or "social interest."

The principle of eliminating pollution at the source will create an incentive financing system for environmental protection. The closer to the source of pollution, the more effective becomes the method of money management. It is, undoubtedly, easier and less expensive to install filters on chimneys than to plant a new forest in several or a dozen or so years.

The principle of socialization denotes the creation of institutional and legal conditions for the participation of the public, social groups, and nongovernment organizations in the protection and shaping of the environment. There will be a place here for long existing organizations such as the Polish Ecological Club and the League for the Conservation of Wildlife as well as for many new groups whose aim is environmental protection. The ministry declares its support of such groups.

The principle of regionalization will broaden or introduce regional self-government and local government administration powers of determining regional fees and ecological demands made on [industrial] plants. There are 27 ecologically threatened areas in Poland which occupy 11.3 percent of the country's surface area with one-third of the country's population living there.

The extent of the work to be done makes it necessary that it be accomplished in stages and priorities be determined. In the first three to four year period, those hazards should be eliminated that have a direct bearing on society's state of health. This pertains to the elimination (or modernization) of 80 "toxic polluter" plants that are on the ministry's blacklist. Shortly, this list will probably grow to 600 plants. Concurrently, outlays for environmental protection will triple in comparison with the current year and will exceed 16 trillion zloty next year.

The second priority is the setting in motion of a hard coal upgrading program—adapting the quality of the coal burned in the country to world standards. Over 50 million tons of coal will be subjected to upgrading which in effect will bring a reduction in sulphur dust emission by 10 percent in the country and by 20 percent in Upper Silesia. According to estimates by experts from the World Bank, the power result will be equal to the installation of an additional 1,000 megawatts. Departure from a coal monoculture in energy production, in favor of obtaining methane, is also being planned.

In this three-year plan of climbing out of the ecological pit, there is also the entry regarding the reduction of dust and gases emitted into the atmosphere, particularly in Silesia, as well as reforming the water-sewage disposal-management sector and the construction of sewage treatment plants. The implementation of programs for the utilization of industrial and municipal waste is also being proposed. A treasure trove valued at \$20 billion is to be found in dumps near Polish mines.

The document also talks about the gradual limiting (with compensation for farmers) of food production on soil contaminated with toxins, with Silesia being given priority.

At the POL-EKO Second International Ecological Fair held in November, Minister Kaminski stated: "In the next 10 years, Poland can become the site of ecological big business." Despite the prevailing opinion, environmental protection is not in conflict with the economy.

Pollution: Effect on Health, Vegetation in Krakow

91WN0182A Warsaw PRZEGLAD TYGODNIOWY
in Polish No 50, 16 Dec 90 p 7

[Article by Leszek Konarski: "In a State of Disaster: Residents of Krakow Inhale Three Percent Less Oxygen Than the Rest of Poland"]

[Text] The intensity of the sun's radiation in Krakow is on an average 17 percent lower during the entire year than in suburban areas. In the summertime, from 10 to 15 percent less sunlight reaches Krakow residents and from 30 to 40 percent less during the winter. The gas cloud hanging over the city very seriously deprives Krakow residents of primarily biological ultrashort radiation.

When in all "normal" urban areas the air contains 21 percent oxygen, in Krakow its concentration amounts to only 18 percent. This three percent difference is filled with other gases, mainly toxic ones.

These are only a few of the facts contained in the 420-page book entitled "Krakow's Ecological Crisis," published by the Polish Ecological Club on the 10th anniversary of its founding. This, probably the first ecological monograph in Poland of the city, is the work of many authors and has been edited by Prof. Maria Guminska and Docent Andrzej Delorme. Most of the studies contained in it were presented during a symposium held at the Jagiellonian University on 2-3 June 1989.

The book begins with a series of articles devoted to the causes that have brought about the current state of affairs in Krakow. The city has fallen victim to the Stalinist policy of industrialization. A huge factory complex and a new town were built—Nowa Huta—in order to weaken the antisocialist views of Krakow's inhabitants. Industrialization was being pushed without regard for its consequences. A new socialist generation was to

grow up in Nowa Huta. Meanwhile, the residents of Nowa Huta were the first in Poland to do away with Lenin's monument and have not wanted to acknowledge their socialist heritage for some time now.

Thus, owing to sociopolitical factors and not economic ones, a metallurgical giant was built on the very rich soil on the outskirts of Krakow in the poorly ventilated Wisla valley, which, instead of producing 1.5 million tons of steel as had been projected during the 1970's, began to produce five times this amount. Therefore, all of this had to bring about the situation in which Krakow currently finds itself.

The biggest polluter is the Tadeusz Sendzimir Steelworks which emits 50,000 tons of dust and 492,000 tons of gases annually. The heat and power generating plants in Leg and Skawina, the more than 1,000 local boiler rooms, and 200,000 coal-fired furnaces weigh heavily on the environment. Particularly the fine dust below 20 microns is very difficult to eliminate. The air in Krakow is filled with sulphur dioxide, aluminum oxide, carbon monoxide, fluorine, hydrocarbons, and heavy metals. The sulphur dioxide norm for specially protected areas, with Krakow being one of them since April of last year, has been surpassed fivefold.

Industrial pollution is supplemented by 75,000 tons of fumes produced annually by automobiles driven in the city. At some intersections, the concentration of exhaust fumes exceeds the norm by two to three times, whereas it is frequently surpassed even 100 times at bus stops.

The surrounding forests that were to fulfill the role of the area's lungs, are slowly dying. Studies conducted in the Puszcza [forest] Niepolomicka in the area of Krakow have shown a two to five times greater accumulation of sulphur in pine needles and a reduction of photosynthesis by approximately 40 percent. The soil in the Puszcza Niepolomicka contains significant levels of zinc, lead, and cadmium. It is also very acidified.

In one of his papers, Docent Jozef Curzydlo from the Krakow Agricultural Academy presented the results of tests on plants depending on their distance from the Lenin Steelworks which today is called the Sendzimir Steelworks. The further away from the facility, the less iron, lead, and cadmium in the plants.

People are also suffering. According to Docent Adam Biela from the Lublin Catholic University, respiratory illnesses, followed by diseases of the nervous system including psychological disorders, are prevalent among residents of the neighboring vicinities of the Sendzimir Steelworks. Neuroses, stress conditions, irritation, and feelings of depression are common. Children are the most at risk from environmental contamination. As much as 80 percent of Krakow's children have some abnormality in their physical development which is also tied to psychological problems. In the areas of serious environmental threat, three times as many mentally retarded children were noted. Hyperactivity was

observed in 33.7 percent of the children in Krakow and disorders in the form of aggression, quick temper and irritability in 6 percent.

Prof. Maria Guminska from the Krakow Academy of Medicine refers to the results of studies conducted at the Pulmonary Clinic of the Academy of Medicine. During the last nine years, a threefold increase of bronchitis incidence has been noted. According to the author, symptoms of chronic respiratory diseases appear in 30 percent of the adult residents of Krakow. Consequently, this leads to circulatory disorders and hypoxia [tissue deoxygenation] particularly that of the heart and brain. Hypertension among the residents of downtown Krakow occurs five times more frequently than outside the city.

Losses resulting from the destruction of the environment are huge and difficult to calculate. The authors of one of the studies estimated that on an annual scale they constitute 34 percent of the value of the entire production output of Krakow voivodship.

The only ray of optimism is the fact that 75 percent of the residents of Krakow believe that through collective action it is possible to avert a catastrophe. I feel that the authors themselves of the particular studies contained in the book, "Krakow's Ecological Crisis," have hope that their collective voice will jolt the conscience of those responsible in our country for the state of the natural environment.

BELIZE**Texaco Succumbs to Government 'Pressure', Cleans Spill**

*FL0502214191 Bridgetown CANA in English
1319 GMT 5 Feb 91*

[Text] Belize City, Feb 5, CANA - An oil spill clean-up operation is underway in Belize, following the crash of a road tanker over two weeks ago. After being pressurised [as received] by the Ministry of the Environment, Texaco Belize said it would pay for the clean-up and provide fresh water for villagers affected by the spill.

The tanker was on contract to Texaco from a Mexican company. It was carrying heavy bunker oil used in the generation of electricity when it overturned near St. Margaret's Village on the Hummingbird Highway in the northern Maya Mountains. The road is notorious for its rough surface and narrow bridges and is soon to benefit from a major upgrading programme.

Ministry of Environment officials said they were aware of the oil spill within a couple of days but when they contacted Texaco, the company said it had no expertise to deal with it. Now, after a series of meetings and advice from the solicitor general, officials said they had persuaded Texaco to pay for the clean-up.

Environmental officer Ismael Fabro said retention barriers were now in place and fresh water was being supplied to villagers. A spokesman for Texaco said the company was doing all it could to help. He said about 200 gallons of oil had been spilled.

Last week, frustrated by the lack of any action, the St. Margaret's Village council issued a press release calling for action. The council said oil had reached 12 miles down the river and was affecting the delicate nesting beaches of the iguana. The hickatee turtle, water dogs, and gibbon were also affected, and rocks along the river bank were solid black.

Villagers had to walk two miles to ferry water from another creek in pig tail buckets. The owner of a mountain lodge complained his business was being ruined.

BRAZIL**Four Arrested for Murder of Rural Union Leader**

*PY0602204091 Madrid EFE in English 1806 GMT
6 Feb 91*

[Text] Belem, Brazil, Feb 6 (EFE)—Four people have been arrested on suspicion of murdering a rural workers' union president, the latest in a string of killings of people opposed to land grabbing in the Amazon jungle, according to Brazilian press reports Wednesday.

Union leader Expedito Ribeiro de Sousa was gunned down Saturday at Rio Maria, some 1,600 km north of

Brasilia. He was the fifth person in the area to be killed in the past year in disputes linked to clearing jungle land for farming.

As happened after the 1988 killing of Chico Mendes, the rubber tappers union leader and noted rainforest preservation campaigner, President Fernando Collor de Mello has received a flood of letters from international environmentalists calling for a clampdown on the killings. But local police said investigations were being hampered because many witnesses feared giving evidence because of possible reprisals.

Parish priest Ricardo Rezende, who has himself been threatened, said that 173 rural workers had been killed in the region since 1980. He blamed landowners who, he said, regularly met in Rio Mario to plan their crimes.

BRITISH VIRGIN ISLANDS**OECS Initiates Reef Protection Pilot Project**

*FL1302020091 Bridgetown CANA in English
2014 GMT 12 Feb 91*

[Text] Road Town, Tortola, Feb. 12, CANA—The Conservation and Fisheries Department of the British Virgin Islands is moving to protect a reef off Anegada. The government information service, which announced the project, quoted conservation officer Dr. Gillian Cambers as saying: "The OECS (Organization of Eastern Caribbean States) is using this as a pilot project to monitor its effectiveness in preventing damage to the reef, and in re-establishing the reef as a prime breeding site for certain fish."

The government will be outlawing fishing and boat anchoring in the area. Stocks of fish such as grouper and snapper, and shellfish such as conch and lobster, which are known to breed in reefs, have fallen significantly in recent years, the service reported.

Fisheries officer Sam Davies said, "Over the next five years we'll make regular checks at certain sites within the zone to see whether the fish stock is increasing or decreasing." Davies believes that overfishing in the area has contributed significantly to the fish shortage.

COLOMBIA**Fire Razes Mountain Range; 100,000 Hectares Destroyed**

*PA0702025391 Mexico City NOTIMEX in Spanish
2204 GMT 6 Feb 91*

[Text] Bogota, 6 Feb (NOTIMEX)—The Colombian Government today issued a call to international organizations to help put out a fire that for the past five days has been razing "the Southern Macarena Mountain Range."

Carlos Castano, director of the Institute for Development of Renewable Natural Resources, INDERENA, said that fire fighting planes and other special equipment which the United States and the European countries have are needed to put out the fire that is spreading throughout the oldest park in America.

In the past few hours the fire, started by the carelessness of a resident in the area, has destroyed 100,000 hectares of the park located 220 km from Bogota, and is threatening a vast section of the region.

"It is urgent that the fire be brought under control; otherwise, it will destroy the historic 'Tinigua and Pichachos' Forests," the high-ranking official said.

Castano also said that an unknown number of deer, monkeys, birds, bears, and wild cats have already died. "This is the worst ecological disaster in Colombian history," Castano added.

Fire in La Macarena Forest Reserve Under Control

PA0902024591 Hamburg DPA in Spanish 0129 GMT 9 Feb 91

[Text] Bogota, 8 Feb (DPA)—A fire that has destroyed between 70,000 and 100,000 hectares of the vast Colombian forest reserve of La Macarena (160 km south of Bogota) is now under control, the Presidency of the Republic has announced.

La Macarena, home to some flora and fauna not found anywhere else in the world, burned for seven days before being checked. According to the authorities, it was started by inhabitants in the region who had improperly handled a fire they started.

Experts from UNESCO and several countries cooperated with the Colombian Government to extinguish the fire, which threatened to destroy 3 million more hectares of La Macarena, one of the oldest geological zones in America.

According to the Colombian Institute for Development of Renewable Natural Resources (INDERENA), there is no possibility that the fire will start up again, although residents in the area have been urged to abstain from using combustible materials.

INDERENA will undertake efforts to rehabilitate the region. At the same time, it charged that 200,000 hectares of La Macarena have been deforested over the past two years.

PERU

Environmental Law Discussed; Contamination Detailed

91WN0233A Lima PERU ECONOMICO in Spanish Dec 90 pp 18-20

[Excerpts] Seven years after a Multisector Commission wrote the first draft, the Environment and Natural Resources Code went into effect. It has been the target of harsh criticism, so much so that a bill has already been introduced to suspend it temporarily. Few can doubt, however, that the code has come at a good time, not only because it puts Peru in tune with worldwide concern about preserving the environment but also because very little is known in Peru, a country rich in natural resources, about the environmental cost of economic activity, especially the extraction and processing of natural resources.

In Lima, for example, tanneries dump chemicals and other wastes from the production process into the Rimac River. Something similar is the case in Arequipa with the Chili River. The main problem along the Rimac, however, is that it is being polluted by the mine tailings that are dumped into it. As a result, not only has the cost of making the capital city's water potable risen considerably, but the species in nearby areas can no longer reproduce. For example, specialists in this field say that there is no longer any life to be found for seven km around the spots where wastes are dumped into the Rimac River.

In Lima as well, the Quimica del Pacifico Company dumps 26,000 tons of hydrochloric acid a year into the sea, and another state-run firm, Paramonga, unloads 16,000 tons more, besides 30 kg of mercury a day. As a result of all this, the fishing resources in the ocean have shrunk, and the marine flora has practically disappeared from those areas. Bermejo Beach is a well-known example. Its waters used to be suitable for skin diving; now, though, the chemical wastes dumped by Paramonga have turned it into a practically deserted spot.

The prawn farming off the coast of Tumbes has led to a severe reduction of the mangrove swamps growing in the mouth of the Tumbes River; roughly 400,000 hectares have been deforested.

The jungle is probably the hardest hit region of Peru, however, mainly because of oil, mining, and drug trafficking. Petroperu [State Petroleum Agency] and other oil companies operating in the jungle store oil in pools that often overflow because of the heavy rains in the region, contaminating the area and killing off crustaceans, fish, and plant life. According to information from the National Office of Natural Resources (ONERN), roughly 2 million hectares are affected. In Madre de Dios, in turn, the miners who wash for gold dump mercury into the rivers in that border area; as a result, the aquatic fauna in the upper reaches of the Ene,

Tambo, and Perene Rivers is being killed off by the tailings in the areas near mining centers.

The drug traffickers who are polluting the jungle with sulfuric acid, kerosene, and lime will unquestionably ignore the provisions of the code. Roughly a million hectares have been damaged on their account.

The mine tailings that Centromin [Central Peru Mining Enterprise] dumps into the San Jose River and that are picked up by the Mantaro River constitute a serious problem for the Junin ecosystem. Every time that the floodgates of the dam at the Mantaro Hydroelectric Power Plant are shut, the tailings flow towards Lake Junin, where satellites have detected large accumulations of wastes that have harmed the lake's fauna: the dab-chick (a bird found nowhere else and whose numbers have dwindled to just over 300) and the Junin frog (a food source that has enabled the natives to survive and whose weight has dropped from a half to less than a quarter of a kilo).

As the locals tell it, the mine tailings deposited in the lake bed often kill the cattle and sheep that graze near the lake when its water level drops. According to the Ecology and Conservation Association (ECCO), one way to restore the Junin ecosystem would be to improve water management by using locks at the entrance to the lake. The risk involved in this measure, however, is that water will accumulate in the zone and threaten a nearby archaeological reserve. Nevertheless, if a two year deadline is set for the archaeological excavation work and the water-management project is implemented only thereafter, the problem could be resolved.

The most serious problem in the Peruvian Amazon, and in general throughout Latin America, is deforestation. One of every three hectares of the highland jungle has been affected, for example. Close to 300,000 hectares of forest are lost every year as a result of migratory farming, as practiced by the poor in the Andean region who are moving into the jungle.

According to environmental experts, the spirit of the code is not to prevent the development of natural resources, as some concerned sectors have already indicated, but rather to assure development that is sustainable from an environmental, economic, and social standpoint. In their opinion, the code is fundamentally precautionary; it does not just oversee or punish. It is this latter aspect that most worries some sectors of economic activity, especially mining. According to the vice president of the Southern Peru Copper Company, [omitted], "the code lacks prudence and establishes very severe penalties and restrictions, such as the period (180 days) for meeting the demands of the code. In this sense, the code will hinder economic development."

The code does contain a special section for the energy and mining sectors, perhaps because in the history of economic development in Peru and Latin America they

have disrupted ecosystems the most. Under the code, oversight of mining and metallurgical activity will be permanent, and the measures ordered to undo the contamination caused will be severe. Thus, there is a chance that "in the case of public use or social interest" mining leases may be expropriated upon payment of just compensation. Also, the code makes it possible to punish a company that already has a mining lease if it fails to comply with environmental regulations. In this event, the lease may revert to the State.

Environmentalists say, however, that the code does not stiffen existing demands because expropriation and reversion are already part of Peru's legal system (D.S. 034-73-EM in the case of mining and R.N. 664-78-EM/DGM in the case of petroleum). It is to be hoped, however, that the code's regulations will appropriately define "the social interest" so as to prevent this article from being used for political purposes.

If the code and its regulations do not encounter major obstacles, as of next year economic players will have to adapt not only to the new economic climate (marked by a consolidating stabilization and the start of structural reforms) but also to the demands that the new environmental legislation poses. This will force state-run and private firms to take up responsibilities in looking out for the environment, which will entail expenditures that they will have to include in their production costs; ultimately they will pass these costs on to consumers or else accept narrower profit margins. Taking a medium-range outlook, they would be best advised, of course, to absorb these outside costs and allow the ultimate consumers, whether here or abroad, to pay realistic prices for the products that they are demanding. Otherwise, the social impact could be extremely harmful in the long run.

Levels of Environmental Contamination in Peru

Category	Amount
Ocean waters	Cubic meters a year
Household effluent	410,625,000
Mining effluent	105,500,000
Industrial effluent	78,000,000
Mainland waters	Cubic meters a year
Household effluent	11,441,290
Mine tailings	87,794,000
Petroleum discharges	113,370,000
Air pollution	
La Oroya (residual gases)	120,000,000 cubic meters a year
Ilo (sulfurous gases)	1,5000 metric tons a day
Chimbote (iron and steel)	685 metric tons a day
Marcona (residual gases)	12 metric tons a day
Automotive vehicles	500,000 metric tons a year

Source: ONERN Compiled by Apoyo, S.A.

REGIONAL AFFAIRS

Soviet Scientists Offer Help With Gulf Oil Slick

PM0602135191 Moscow IZVESTIYA in Russian
6 Feb 91 Union Edition p 1

[From the IZVESTIYA, TASS, UPI, SIBINFORM, INTERFAX column: "Scientists Ready To Help"]

[Text] Tyumen scientists are ready to solve the problem of liquidating the oil slick in the Persian Gulf.

"It was seven years ago that we developed an ecologically pure biological agent against oil pollution," I. Nesterov, corresponding member of the USSR Academy of Sciences, said. "Thanks to it, oil spillages in the waters of the Caspian Sea and Lake Onega have been cleaned up."

Unfortunately, the agent is produced in small quantities. The liquidation of the oil slick in the Persian Gulf will require the production of 100 tonnes of the powder over a period of two-three months. The scientists are ready to submit scientific estimates and help production workers get down to work at once, TASS correspondent M. Prutkin reported.

Saudi Environment Office Reports 'Little Movement' of Oil Slick

LD0902142891 Riyadh SPA in English 1236 GMT
9 Feb 91

[Text] Riyadh, Feb. 9, SPA—There was very little movement of the oil slick from yesterday's position, north of Manifah to a point east of Tanagib in the light of an overflight conducted by a helicopter of the civil defence, according to a press update issued last night by the meteorology and Environmental Protection Administration (MEPA), the eastern province.

Several large patches were seen offshore moving south-east, possibly posing a threat to Abu Ali Island, an important environmental area. There was a light sheen from Manifah south to Abu Ali.

Beaches were heavily oiled from north of Ras Al-Zure to Safaniyah, specially at Tanagib.

Heavy oil was observed at Manifah in the entrance of important environmental areas. An operation has begun at this location using the Japanese boom to protect important environmental resources. Another operation was also started to remove the oil from Manifah Bay by trenching and pumping.

The Norwegian boom and Norwegian technicians are now in place at the Jubayl Desalination Plant. Further offshore boom is in transit which will be used for deflection at this site [as received].

Experts from Holland arrived yesterday and are working with the response team to protect important environmental areas and design offshore skimming operations.

A team from the United Nations Environment Program has been working with the response effort during the past two days.

A European Community liaison arrived yesterday to review the effort and methods in which resources of the European Community (EC) might be directed towards the spill response.

The second shipment of Japanese booms arrived last night. This shipment included six kilometers of harbour boom. Another flight from Japan is expected later today. A total of six shipments is expected.

The International Maritime Organization (IMO) representative has received more than 300 offers of equipment, technicians and services willing to assist MEPA in containment, removal and clean-up. He is working with MEPA representatives to evaluate the products and services.

Final arrangements are being completed for Soviet skimming vessels.

Saudi Petroleum Officials on Efforts To Combat Oil Slick

LD1102220191 Riyadh SPA in English 1928 GMT
11 Feb 91

[Text] Riyadh, Feb 11, SPA—A senior official of Saudi Aramco has expressed optimism that neither the company's oil production nor facilities which provide water and electricity for millions of people in Saudi Arabia will be affected by a huge oil slick resulting from the Gulf war.

'Abdallah S. Zayndin, Saudi Aramco's oil spill coordinator, said the company has searched the world for equipment, supplies and expertise needed to combat what may be the largest oil slick ever in the Gulf region.

In a related development, Dhayfallah A. Faris al-Utaybi, chairman of the company's oil spill committee said "Saudi Aramco has responded promptly to the environmental disaster.

"Our oil spill contingency plan was activated as soon as the first oil slick threatened Saudi territory," he added.

The contingency plan's primary objectives are protection of human life and protection of critical company oil facilities, al-Utaybi said.

Fortunately, southerly winds held the huge oil slick in the northern Arabian Gulf off Iraq last week, giving the company's oil spill response team time to shore up defenses around the seawater intakes of coastal plants.

The main oil spill has remained relatively static on waters inside the hostile combat zone. The spill is estimated to be more than 110 km long by 128 km wide.

But heavy northwest winds began early this week, and oil spill experts say it's hard to predict their effects on the spill's movement.

Until today (Monday), more than 30,000 barrels of oil, equal to 4.5 million liters (about 1.2 million gallons), had been recovered from the Gulf spills.

Meanwhile, a thick ribbon of oil has impacted onshore areas from Ra's al-Mishab south to areas well below the al-Saffaniyah pier. The oil extends for nearly 40 km along the coastline and remains a potential threat to the seawater intake areas at al-Saffaniyah and al-Tanaqib.

The oil spill committee, chaired by al-Utaybi, the executive director of supply and transportation, and composed of 11 other Saudi Aramco executives, directs preparations for dealing with the spills.

"Saudi Aramco has responded to this oil spill with a determination to protect its oil facilities," Zayndin said.

At the request of government agencies concerned, he said the company has installed protective booms and skimmers at desalination plants which supply drinking water to Riyadh.

The company is also protecting saltwater intakes at Scecoco's Ghazlan Power Plant, which provides electricity to all of the eastern province, including Aramco communities.

It is estimated that in the first week Saudi Aramco's oil spills response team had installed about 11.2 km (seven miles) of protective booms plus 100 pilings.

In addition, the company has a fleet of boats with skimmers to pick up floating oil, plus a specialized oil-skimming ship contracted from a Norwegian company.

The company is a participant in Oil Spill Response Limited [OSR] and has received nearly half of the oil-fighting equipment owned by OSR's center in the United Kingdom. Saudi Aramco is also flying in 10 oil experts to supplement the company's manpower and expertise.

INDIA

Minister Asks Boycott of Polluters

91WD0394A Bombay THE TIMES OF INDIA
in English 24 Dec 90 p 7

[Text] Baroda, December 23—The Union environment and forests minister, Ms. Maneka Gandhi, has called upon the people to socially boycott those causing pollution and announced the Centre's intention to enact a legislation to make obligatory for the chemical units to promptly pay compensation to the affected in case of even a natural accident.

Inaugurating, by planting a banyan tree, a national seminar on: "Environment: Rational goals and priorities for action," organised by the Society for Clean Environment (SOCLEEN) here yesterday, Ms. Gandhi said the proposed measure would be enacted in the next session of Parliament.

She said the bill provides for a chemical unit to pay compensation between Rs 12,000 and Rs 25,000 within 24 hours in case of any leakage due to natural or man-made causes and affecting at least five people inside or outside the factory premises.

The compensation to be paid would not take away the affected people's rights to move the courts for more damages. She said the government had to consider the measure drawing from the experience from the Bhopal gas disaster in which the country had not yet succeeded in getting even a penny so far from Union Carbide.

Ms. Gandhi, however, said no amount of legislation could make people environmentally conscious, unless they organise social boycott of those causing pollution. The measure had proved very effective in the United States and some European countries and there was no reason why people causing pollution would not mend their ways if boycotted socially by others.

Advising the people to go for environment audits and energy audits personally to check for themselves how each person was wasting energy sources and causing environmental degradation, Ms. Gandhi also strongly criticised the energy ministry for being the biggest nuisance causing pollution and the role of some of the courts in protecting environment.

Ms. Gandhi said power projects were the largest pollution-creating agencies while wasting a hot [as printed] of energy. She said on an average, power plants did not work at more than 49 percent efficiency.

According to her, irrigation and power project dams in the country generate electricity contributing merely 2.4 percent of the total requirements. What was the use of such hydel [as received] power projects, she queried.

But, she said, the government had to think about more power projects because people merrily waste energy. The same was true about excessive use of petroleum products which only affect the health and reduce the life span of the people.

Criticising the functioning of the courts, she gave the example of the Dahanu power project, which she said was the single largest instance of setting up a power plant while totally ruining the environment. But the court rejected the plea of the environmentalists stating that the power project was more important for the country.

Ms. Gandhi also had a dig at the Tehri dam project in Uttar Pradesh which she said was conceived as a Rs 189-crore project. The cost had gone up to Rs 9,000 crores even before the approach road was constructed and would end up costing Rs 15,000 crores by the time it

was completed. She questioned the merits of such colossal money wastage for such small returns.

She cautioned that the Indian sub-continent would be the worst sufferer of the greenhouse effect when most of the country's coastal areas would be inundated. Ms. Gandhi said the only way to defuse the crisis was to plant more trees. She said planting of 150 billion more trees in the country could delay the impact of the greenhouse effect by just 10 years.

Strongly criticising the practice of organising seminars and conferences only to talk about environment, Ms.

Gandhi said the time had come for action and not mere talk. "We should start working instead of asking others to do it for us.

Ms. Gandhi also announced the government's plan to create an artistes forest. The artistes would be requested to donate one of their works each to be auctioned to meet the cost of raising a forest the land which would be provided by the government. The forests would be equipped with some cottages for the artistes to paint. [paragraph as received]

She said the government had plans to create 1,000 such forests the first of which would come up in Rajasthan soon.

Official Describes New 'Ekolas' Ecological Association*91WN0219C Moscow TRUD in Russian 18 Jan 91 p 4*

[Interview with Professor V. Akovetskiy by V. Karpov: "Clean Air—A Reality"]

[Text] "Ekolas," a new ecological association, has been created. It was founded by 35 of the country's leading enterprises and organizations. Still, we have already witnessed the birth and rapid extinction of such firms. What could yet another one offer us? We asked this question of the vice president of "Ekolas," Professor V. Akovetskiy.

[Akovetskiy] It is true that there are many ecological associations. But is also true that the problem of nature protection is an urgent one. We intend to do what the USSR State Environmental Protection Committee, which in contrast to us possesses no productive capacities, cannot do. "Ekolas" operates on the basis of full cost accounting, you see—it hasn't taken a kopeck from the state, and it won't. Our principle of operation is based on signing contracts and carrying out our assignments.

[Karpov] And what specific projects have you carried out, or are now carrying out?

[Akovetskiy] As an example we drew up the "Ecologically Clean Region" program and submitted it to the Moscow City Soviet and the Moscow City Executive Committee. Or another example: We developed equipment that could reveal radioactively dangerous products at meat packing plants. Our first order is being filled for Mogilev. In the very near future we will conduct an expedition aboard the scientific research vessel "Akademik Krylov" on the Black and Mediterranean seas. To put it simply, we will make observations of the water and air with the assistance of the satellite Resurs-01.

[Karpov] As I understand it, you intend to make use of the capabilities of defense industry and of enterprises undergoing conversion.

[Akovetskiy] Yes. Unique ecological equipment is operating at a number of defense plants. More of it must be made—then both the air and the sky will be clean. This is an extremely complex task. And we will also be counting on help from foreign companies.

FRG Delegation, New Association Meet To Discuss Environmental Technology*91WN0224A Moscow RABOCHAYA TRIBUNA in Russian 22 Jan 91 p 4*

[Report by Vladimir Lagovski: "Ecology and Market"]

[Text] Recently created by the USSR State Environmental Protection Committee and the USSR Chamber for

Trade and Industry, the Association for Business Cooperation With Foreign Countries in Environmental Protection [Assotsiatsiya delovogo sotrudnichestva s zarubezhnymi stranami v oblasti okhrany okruzhayushchey sredy] is taking its first steps.

On the invitation of the association, a delegation of representatives of FRG business circles visited our country. They are solid partners. After all, as is known, the FRG has declared its intention to enter the 21st century as the most ecologically clean country. There is much we can learn from it. Our Western colleagues' interest in our country is understandable, too. The USSR is a practically bottomless market for technology and research and development in environmental protection. But is there an opportunity for trade in this market?

"Yes, there is," says Dr. K. Flekenstein, head of the department for economic development and environmental policy of the FRG Chamber for Trade and Industry.

First, he said, enterprise directors are well aware of ecological problems their industries are responsible for; they know what to do, and they do not sit idle. Second, they themselves have some excellent research and development results in the area of environmental protection. In other words, there is something to sell, and something to buy.

The doctor was concerned about just one issue: Would our enterprises be permitted to trade on their own?

"The association will undertake this task for them," assured General Director I. Norko. "We will help the enterprises to enter foreign markets."

Our newspaper also offered help—we invited both sides to participate in RABOCHAYA TRIBUNA "Ideas Exchange." Both agreed. Now we are waiting for new ecological ideas.

Deputy Foreign Minister on International Role in Chernobyl Clean-Up*91WN0223A Moscow PRAVDA in Russian 23 Jan 91 Second Edition p 3*

[Dialogue between V. Petrovskiy, USSR deputy minister of foreign affairs, and V. Gubarev, PRAVDA science department editor: "The Pain of the Planet"]

[Text] [Petrovskiy] I definitely encounter the word "Chernobyl" every day when I look through summary reports, press reviews, coded cables, and reports of agencies and embassies. Aid is arriving from all continents, concern and alarm are heard in different languages. The scale of aid is growing...

[Gubarev] Almost five years have now passed... However, I get the feeling that the tragedy occurred yesterday: All of these years have been associated with Chernobyl to some degree. At first, we reported the story; after all, I

headed the first group of journalists who went to Chernobyl, and now there is quite specific aid. I mean the action: "For the Children of Chernobyl" that is conducted by PRAVDA, the Joint-Stock Company "Unknown Space Launch Complex" ["Neizvestnyy kosmodrom"], and many Soviet and foreign organizations that are cooperating with us.

[Petrovskiy] The accident at the Chernobyl AES [Nuclear Electric Power Station] is one of the greatest man-made disasters in the history of world civilization. Its global dimensions became apparent in the very first days after the explosion. The perception that the grief that befell the planet was common was so profound that the issue of who was to blame virtually did not arise in the international arena. They gave thought to something else: What was to be done next? The answer to this question was unambiguous: To help.

[Gubarev] Still, we should remember that the delay of information in the initial days and its subsequent concealment have harmed us tremendously, and not only abroad but first of all domestically: Mistrust developed. At present, it is manifested in different forms, including absurd ones. For example, conclusions drawn by the most authoritative scientists on the planet are called into doubt. We cannot conceal the truth from our own people—this is one of the lessons of Chernobyl. Incidentally, we, the journalists who worked there in the initial days after the accident, are reproached: They say that we failed to report completely and concealed a lot. This is not true. We only wrote about what we saw with our own eyes. Moreover, it was especially information coming from journalists that helped the government and the party leadership make a number of important decisions. It is a different matter that at the time it was difficult to appreciate the scale of what had happened. I was among the pessimists, that is, I said that we would not succeed in cleaning up the accident quickly. Moreover, in a conversation with Aleksandr Nikolayevich Yakovlev, I made this call: "Several years, maybe a decade will be required to neutralize the disaster..." Many specialists believed so at the time, only later, in another year, it became clear that decades would be required.

[Petrovskiy] Indeed, supersecrecy was a great obstacle in the initial days. The beginning of international cooperation did not come easy, whereas readiness for it was shown in the very first days after the reactor explosion. A number of Western countries gave us expertise and the technical means for the analysis of what had happened. A group of medical personnel arrived in the USSR in order to provide emergency aid to those exposed to radiation.

[Gubarev] Incidentally, a book by Robert Gail was recently published in our country. He describes in detail his work in Hospital No. 6, the victims, and the heroism of Soviet medical personnel who did all they could in order to help the injured and to save those who could not be saved... Unfortunately, people have come forward who have tried to belittle the medical and political role

of Robert Gail. Fortunately, the American professor did not respond to petty attacks. In this case, he turned out to be "on the level," though he failed to understand why they were somehow rebuking him. After all, he did all he could. We have met with R. Gail several times, both here and in California: His attitude toward the Soviet people has not changed; he is always prepared to help us. Perhaps, some people do not know that he has accepted several sick children at his clinic and is treating them free of charge.

[Petrovskiy] We will be forever grateful to Dr. R. Gail, his colleagues, and the many people who came to our aid. At present, instruments and equipment, individual dosimeters, disposable syringes, various types of drugs, and baby food sent by government, public, and private organizations continue to arrive in our country. It appears to me that the example of Dr. Gail is quite instructive; he now has many followers and like-minded people.

[Gubarev] I would not like readers to get the impression that everything began with Dr. R. Gail and Armand Hammer, who sponsored the work of the medical personnel and who immediately after the Chernobyl accident donated drugs and necessary equipment for the victims. There were many such cases. We have touched on just one area. It appears to me that recently the scale of aid has undoubtedly increased compared to the summer of 1986. Perhaps, you know more about it. After all, in essence the USSR Ministry of Foreign Affairs has become a headquarters of sorts, into which all information comes.

[Petrovskiy] Soviet diplomats have been doing a lot of work in this regard though technically this is not one of their official duties. We try not only to express our gratitude to those who would like to help but also to make every effort for the aid to arrive in a timely manner and without bureaucratic foot-dragging which, unfortunately, is still very much in evidence...

[Gubarev] Excuse me, but I should thank the staff of embassies and consulates who have joined the campaign by PRAVDA associated with extracting drugs from coconut shells. It was precisely due to the diplomats that the contacts needed were established. The first shipment of drugs has already arrived; it was sent to treatment facilities for children in the Ukraine and Belorussia. There also is an agreement with Vietnam from which this raw material is going to come. This will make it possible, within two to three years, to fully meet the need for such medication... Literally a couple days ago, we received a message from England: Embassy employees have collected funds with which drugs and baby food will be purchased. They will be sent to the orphanages of Bryansk Oblast. We would like to give our heartfelt thanks to all of those who participate so vigorously in our campaign: "For the Children of Chernobyl."

[Petrovskiy] This is our human and civic duty. Undoubtedly, we will provide such aid in the future as well.

I believe that our people need to be aware of the current scale of work associated with eliminating the consequences of the Chernobyl accident. In essence, the entire international community is taking part in it. Let me give several examples.

The government of the FRG gave to the Soviet side as a gift a facility for the decontamination of powdered milk (costing 40 million marks). France allocated 10 million francs for conducting a special program of aid to those who were affected by the consequences of the accident. The government of India, having handed over a check for 10 million rupees, stated its readiness to furnish medical equipment and drugs for this amount. The Netherlands, Great Britain, Switzerland, and a number of other countries would like to provide material and technical assistance. Literally days ago, we learned about the decision of the EC to deliver to the USSR free of charge dosimeters worth a total of \$200,000.

The preparation of an agreement between France and the RSFSR, the Ukrainian SSR, and the Belorussian SSR on cooperation in the field of radiation medicine and on reducing the medical consequences of the accident to a minimum is being completed.

Good prospects are opening up in conjunction with the signing and the beginning of the implementation of a Soviet-Japanese memorandum on cooperation in overcoming the consequences of the accident. Japan is providing to us, through international organizations, aid in the form of medicines in the amount of U.S. \$15 billion. The development of an expanded intergovernmental agreement on the issues of Chernobyl is on the agenda.

On a practical level, we are pursuing opportunities to secure funds for Chernobyl from public and private donors. Thus, the private Japanese organization, "the Sasakawa Fund," is preparing a five-year program of assistance to the three republics affected (on the order of \$30 million). About 10,000 children have been given an opportunity to go abroad for recreation in the last year alone on the invitations of various organizations from 25 countries, including the World Scout Organization. Several dozen people received courses of treatment in the best clinics.

[Gubarev] Recently, a delegation from ASAHI visited us. The journalists were received by the USSR president. At this meeting, the chiefs of ASAHI handed Mikhail Sergeyevich a letter in which they communicated that they had also joined in helping the children of Chernobyl. There have been many similar cases. However, we would very much like the Soviet people to perceive the real effect of these donations, so that they do not go down the drain. As I see it, we should control such contributions more thoroughly and specify concrete addresses. In particular, it appears to me that the ASAHI donation should be turned into quite real medical equipment. We have already received requests from the Ukraine for medical equipment for hospitals in the vicinity of the zone. The trade unions of Belorussia have

suggested that we take part in outfitting the Republic Health Maintenance Center for children and parents from the affected zone. The public should also carefully see to it that such equipment does not rot away in warehouses or disappear without a trace. Information should, perhaps, be concentrated in the committees for the issues of Chernobyl which have been created in the republics. To my mind, it is necessary to regularly report in the press and, perhaps, in the Supreme Soviets as well, on how the equipment and medicines are used. In all honesty, at times we cannot inform our foreign partners about precisely how their gifts are used. Unfortunately, aid is not necessarily provided to those who need it.

[Petrovskiy] I agree: Punctiliousness is absolutely necessary in such an endeavor. Tremendous confidence is placed in us, and it is criminal to abuse it.

[Gubarev] All the more so because the most authoritative international organizations have now become involved in the Chernobyl issue.

[Petrovskiy] You are right. The general human background and the principle of mutual dependence were manifested particularly vividly in the course of considering, in the UN organs, the issue of assistance in the elimination of the consequences of the tragedy, which was raised on the initiative of the USSR, the Belorussian SSR, and the Ukrainian SSR, with active participation by the RSFSR. We should note that the pursuit of this initiative was quite complicated because at issue was the allocation to us of actual resources—financial, material, and human—within the UN framework. Nonetheless, based on the results of discussions in the Economic and Social Councils, a special UN mission visited our country. Useful recommendations, prepared by participants in the mission, were presented to the world community in a report by the UN secretary general.

The consideration of these recommendations at the 45th Session of the UN General Assembly ended in the preparation of a resolution that was co-authored by an unprecedented number of countries, 120. The resolution provides for specific measures aimed at reinforcing corresponding programs, securing additional voluntary contributions for their implementation, and continuous monitoring of such work. A special center for coordinating such cooperation has been set up in the UN Secretariat.

[Gubarev] I do not think that the role of international organizations, which have been working in Chernobyl since May 1986, has declined. I mean the International Atomic Energy Agency [IAEA], WHO, UNESCO, and UNEP [United Nations Environment Program].

[Petrovskiy] Specialized elements of the "UN family" play a special role in the Chernobyl problem. In particular, IAEA General Director Hans Blix visited the Chernobyl area as early as several days after the disaster. The agency made a substantial effort to analyze objectively the situation in the affected areas and evaluate the radiological situation. The USSR provided to the IAEA

a detailed report on the technical aspects and causes of the accident, as well as the integrated program of safe development of nuclear power generation. International conventions on notification of a nuclear accident and assistance in the event of a nuclear accident were developed under the aegis of the agency and with our vigorous participation. We have signed a number of bilateral agreements on the basis of these conventions.

In the environment of the profound emotional effect the accident had on the population of the affected areas and the lack of trust in the evaluations of domestic specialists that developed due to this, the Soviet Union approached the IAEA with a request to organize an independent expert review of the situation in these regions under its auspices. It is now being carried out using the potential of the WHO, UNEP, and a number of individual experts from developed countries. In September 1990, the USSR, the Ukrainian SSR, and the Belorussian SSR signed an agreement with the IAEA on establishing in Chernobyl an international center for the study of the consequences of the nuclear accident.

[Gubarev] Hans Blix is among the laureates of "PRAVDA-90." In the summer of last year, he published principled material on the pages of our newspaper. As is known, a quite sensitive situation developed at the time. A group of experts was greeted in the zone in, to put it mildly, a "hostile manner." Prominent scientists came here using their leave time and at their own expense, but, in pursuit of political ambitions, some people accused them of ill-will and betraying the interests of science. Shameful articles were published in the local press. Naturally, the scientists took offense. To the credit of Hans Blix, he turned out to be above these petty intrigues. He managed to convince his colleagues from various countries that such incidents are not characteristic of our society. The authority of the general director definitely played a role. The expert review in the affected areas has been carried out. At present, full and comprehensive processing of the results is being completed.

[Petrovskiy] It is necessary to stress that cooperation with foreign states and international organizations with regard to the issues of Chernobyl graphically reveals one more aspect of interdependence. The simple receipt of material and technical aid by us is not the whole issue. In turn, our partners gain access to the scientific research of processes caused by the catastrophe and the work on eliminating its consequences. In particular, this is the rationale for the international centers set up jointly by the IAEA and the WHO.

These developments are absolutely necessary from the point of view of the already available international experience. We may recall in conjunction with this research projects carried out in Japan, which suffered the deadly effects of nuclear weapons. These research projects are significant for all of humanity and are conducted with a view to benefiting all states and peoples, the entire sorrowful nature of events that are the basis for these projects notwithstanding.

When making generalizations about the scope of international aid, we should be fully aware that this aid will not solve our problems in and of itself, and that the main responsibility for restoring normalcy in the affected regions devolves on us. It is no secret that the stress of Chernobyl overlapped with obvious statewide and local socioeconomic problems, and difficulties of an organizational nature that are due to evident oversight, irresponsibility, and confusion.

This is why particularly great responsibility devolves on the recently created All-Union Committee for Eliminating the Consequences at the Chernobyl AES, and the proper RSFSR, Ukrainian SSR, and Belorussian SSR organs. The success of our common endeavor will largely hinge on their ability to ensure effective interaction with the coordinating center of the UN Secretariat and to support its efforts in the field.

GENEVA, 22 January (TASS). A resolution on an international program to reduce the impact of the consequences of the Chernobyl accident on the health of the populace was adopted today by unanimous decision of the members of the WHO Executive Committee. In particular, this program, which was initiated by the WHO and the USSR Ministry of Health, calls for setting up an international center for the issues of radiation medicine in the city of Obninsk near Moscow in order to study the issues of treatment and prevention of diseases in people who have suffered from the Chernobyl accident.

Gubanov Gives Details of Chernobyl Clean-Up Program

LD0502184291 Moscow TASS in English 1834 GMT
5 Feb 91

[By TASS correspondent Andrey Surzhanskiy]

[Text] Moscow February 5 TASS—According to preliminary data, 72,700 residents left contaminated areas last year alone, Viktor Gubanov, chairman of the Soviet governmental committee monitoring the implementation of the 1990-1992 state programme for the elimination of the aftermath of the breakdown at the Chernobyl Nuclear Power Station, told journalists today.

Out of 29,000 people living in areas with increased density of contamination (over 40 curies per square kilometre), 26,900 people have been already relocated, he added.

Expenses connected with the relocation of people will be fully compensated by the state. People will be entitled to benefits and provided with housing accommodation, Gubanov said.

All people are expected to be relocated in 1991 from areas with soil radioactivity exceeding permissible norms. Provision has been made to relocate people from less-contaminated territories (from 15 to 40 curies) by 1992. Not less than 140,000 people are expected to be relocated from such areas.

This year 10.3 billion roubles will be assigned for clean-up operations, as against 1.1 billion in 1989 and 2.2 billion roubles in 1990. In all, 9.2 billion roubles have been spent on clean-up operations since the accident occurred, Gubanov said.

A Chernobyl accident-related bill intended to ensure the social protection of the population has already been submitted to the Soviet parliament's consideration, and a long-term programme for the elimination of the aftermath of the Chernobyl accident has been elaborated, committee spokesmen told journalists.

Chairman Details Ukrainian Chernobyl Committee Tasks

*91WN0181A Kiev MOLOD UKRAYINY in Ukrainian
12 Dec 90 p 1*

[Interview with Chairman of the State Committee of the Ukraine for the Protection of the Population from the Effects of the Accident at the Chernobyl AES, Heorhiy Oleksandrovych Hotovchyts, by Yevhen Tur: "The 'Chernobyl Committee' Begins Its Work"]

[Text] October of this year saw the establishment of the State Committee of the Ukraine for the Protection of the Population from the Effects of the Accident at the Chernobyl AES [nuclear electric power station]. As a result of the efforts of the Supreme Soviet Commission on Chernobyl Problems, Heorhiy Oleksandrovych Hotovchyts was selected as committee chairman. Before taking up this post, Heorhiy Oleksandrovych served as the deputy chairman of the Zhitomir Oblast Executive Committee. During the last three years, he has dealt with the problems of the effects of Chernobyl. He is married and has two daughters. He sees the aim of his work as being the solution of all problems linked to the Chernobyl catastrophe. Our correspondent discusses with H.O. Hotovchyts replies to questions put in letters from readers.

[MOLOD UKRAYINY] What exactly is your committee?

[Hotovchyts] The State Committee of the Ukraine for the Protection of the Population from the Effects of the Accident at the Chernobyl AES has been in existence for only one month. It is a new structure of the organs of state government. It was established in order to bring together all the efforts made by scientists, practical workers, local councils and government bodies, so that all efforts being made for the protection of the population would give practical benefits. So that there would be no idle talk, scattering of resources, duplication of work. Plus the passage of laws, acts, which would protect people who live in the contaminated districts and who have moved to new places.

[MOLOD UKRAYINY] Your committee has only just been established. But the problems are old.

[Hotovchyts] And they are mainly very difficult psychological problems. You can imagine, tens of thousands of families obliged to leave their accustomed places of residence, to break social, cultural, ethnographic ties. We must organize their resettlement, build habitations for them. If this year's program dealt with the resettlement of 13 thousand people, for next year, we foresee the resettlement of close to 30 thousand.

[MOLOD UKRAYINY] From which rayons?

[Hotovchyts] Mainly from the contaminated zones of the Kiev, Zhitomir, Rovno and Chernigov Oblasts.

[MOLOD UKRAYINY] How do you view the solution of the problem of refugees from Chernobyl?

[Hotovchyts] In the Ukraine, close to two million people find themselves in zones of radiation. There are different levels of contamination, different levels of risk, effect on health of the present and future generations. That is why we think that there is a need for gradation. First of all, people who have children below the age of 14 should leave those several hundred populated points which are contaminated. For those who remain, we must solve the problem of improving medical service and providing food products.

[MOLOD UKRAYINY] Are the people who resettle being given material compensation?

[Hotovchyts] They are being given compensation for everything that they lose in their place of residence. But there is no firm guarantee that they will be protected in the new places of settlement. The draft laws that are being elaborated by scientists, council workers, co-workers of our committee include legal protection of the victims.

[MOLOD UKRAYINY] When, in your view, will these laws be passed?

[Hotovchyts] Eligibility with regard to place of residence and medical condition, the draft law on the status of the zone, these have been passed on for examination to the commissions of the Supreme Soviet. The draft law on protection of victims and participants in the elimination of the effects of the accident, will be passed on in the near future. Thus, they should be ready by the end of this year or at the beginning of next year.

[MOLOD UKRAYINY] And what is the likelihood that they will be ratified?

[Hotovchyts] Of course, there will be alternative proposals, there will be deputies who do not agree. These documents will be added to, completed, but the logic of their passage stems from the decisions of the Supreme Soviet.

[MOLOD UKRAYINY] There are rumors that as of 1991 the payment of compensation is going to be stopped.

[Hotovchyts] Such rumors reach us too. We will do all we can to make sure that rumors remain just rumors. At present, as a preliminary stage, we have examined these questions with the state planning committee of the Ministry of Finance of the Ukrainian SSR and this money has been put into the preliminary plan.

[MOLOD UKRAYINY] Please tell us the exact amount.

[Hotovchyts] Over 600 million rubles. This is the minimal sum which satisfies the needs of people. But if the zone gets larger, if new benefits are accepted, then, naturally, the necessary monies will be found.

[MOLOD UKRAYINY] With the shift to the market system, or with the increase of prices, that small compensation will be reduced to nothing.

[Hotovchyts] This makes the situation more difficult. But we are setting the budget for next year taking into account the possibility of indexation of prices.

[MOLOD UKRAYINY] And will the so-called "coffin" subsidies be covered by coupons?

[Hotovchyts] At present, I cannot give you a clear answer to that question. The coupon system is new, but as much as possible we will try to influence the solution of this problem.

[MOLOD UKRAYINY] To where are people being resettled from the contaminated zones?

[Hotovchyts] The basis of the approach to the solution of this complex question is the wishes of the people. We give the right to people themselves to choose the place of resettlement. Preponderance is given to places where there is a need for manpower, where people will be able to find jobs. Let people go there, become familiar with the conditions. These are mainly places in the same oblasts, but where there is no contamination. However we have at present examples, and this was, in fact, foreseen by the Council of Ministers Resolution No. 228, of people resettling into the Kharkov and Kirovograd Oblasts.

[MOLOD UKRAYINY] How is the resettlement being financed?

[Hotovchyts] Money for resettlement as part of this year's and next year's program was allocated by the resolution of the USSR Supreme Soviet of April 25 of this year. In addition, financing is foreseen in the draft law. This is a sum of more than R1.5 billion.

[MOLOD UKRAYINY] All right, so the money will be granted, but will there be anyone to put it to use?

[Hotovchyts] This is not a simple question. In a very short time, beginning with January-February of next year, we should begin to make use of that money, to build and build. There should be harmonious work on the part of all organizations, ministries, departments, oblasts.

[MOLOD UKRAYINY] Should be... but are they doing it?

[Hotovchyts] Unfortunately, there are already some cases of refusal. This applies to the Dnepropetrovsk, Zaporozhye, Volyn and a number of other oblasts. They justify their refusals by the impossibility of achieving such an amount of construction works and the necessity of fulfilling the "Habitation" program and other social programs. But Chernobyl is a national problem, a national catastrophe.

[MOLOD UKRAYINY] Those guilty of sabotage must be forced to work.

[Hotovchyts] Of course. The Council of Ministers has already held two meetings.

The government will use all means in order to see that its decisions are carried out.

[MOLOD UKRAYINY] What are the time frames for carrying them out?

[Hotovchyts] We have decided to complete the resettlement program, which was planned for two years, in one year. There is a need to hurry.

[MOLOD UKRAYINY] No less important is the question of protection of the health of the victims.

[Hotovchyts] In our committee there will be a special subcommittee for the protection of health and improvement of health of the population, and we will elaborate a program of planning, selection, coordination and control of all state institutions, foreign countries and firms and community organizations which have answered the appeal of our government for help. There should be a planned, clear action based on medical indicators, natural-climatic conditions and people's age. At present, the program is being worked on by specialists; it will be returned to us before the end of the year. With the beginning of 1991, the improvement of health should begin.

[MOLOD UKRAYINY] For most people, the zone of catastrophe is the Kiev, Zhitomir and Chernigov Oblasts. We only recently learned that there is contamination in the Rovno and Volyn Oblasts. What measures are being planned for the western part of the Ukraine?

[MOLOD UKRAYINY] The fact that the Rovno and Volyn regions were contaminated became known only last year. The natural-climatic conditions in that region are such that at a fairly low level of contamination, food products and water are very much affected. Objectively speaking, this was a failing on the part of our scientists, the Hydro-Meteorological Institute. Did we really need almost four years to find the contaminated areas? At present, measures are being taken. A whole string of rayons of these oblasts have been included into the government resolutions dealing with resettlement next

year. But much time has been lost, the confidence of the people has been lost. Whatever else, we must help people.

[MOLOD UKRAYINY] In that case, do you not intend as the head of the committee to raise the question of payment of at least the "coffin" subsidy to the people of these regions for the period 1986-89, taking into account the level of inflation?

[Hotovchyts] There is common sense and logic in what you ask, but so far we function according to the obsolete formula that the law is not retroactive. But probably, for this trouble, it will be necessary to pay up.

[MOLOD UKRAYINY] How is payment of compensation for dwellings progressing?

[Hotovchyts] The procedure for the payment is clearly indicated in Resolutions 315 and 115 of the Council of Ministers. A person who wants to leave approaches the existing commissions, which go to the spot and assess, taking into account the period of use, the value of the building, garden, auxiliary buildings, greenery, farm buildings. Unfortunately, sometimes mistakes are made in the payments. Another matter is the fact that for that money, people cannot buy a dwelling of equal value in clean districts.

[MOLOD UKRAYINY] So perhaps indexation of prices should be introduced?

[Hotovchyts] The first step towards this system is its introduction into the draft budget of 1991, about which I have already spoken.

[MOLOD UKRAYINY] But still there is no guarantee that there will be full compensation?

[Hotovchyts] So far, that is the case. But in the draft we included this principle. In addition, people who are resettling will be guaranteed a dwelling, without waiting their turn, in selected places of resettlement. Local councils are permitted to buy dwellings at state cost and give them in ownership to people who are resettling. If, for example, a person decided to move from the Narodichskiy Rayon to the Kherson Rayon, the Kherson Rayon would buy the dwelling and the Narodichskiy Rayon Council would pay them back.

[MOLOD UKRAYINY] Is there a system guaranteeing the provision of equally-valuable usable land, garden and other conditions?

[Hotovchyts] So far, not completely. But in the laws elaborated by us, full compensation for all conditions is foreseen.

[MOLOD UKRAYINY] In conclusion, let me ask this: many of our newspapers write about Chernobyl. Could not a "hot line" be set up which would bring your specialists in contact with people?

[Hotovchyts] One of the tasks of our committee is to ensure that complete, objective information on all problems of Chernobyl is provided. It is impossible to avoid contact with people in this matter. We expect to receive people openly, to have our own newspaper or bulletin dealing with Chernobyl problems. But taking into account that we have only just been established, that we are not yet staffed, these questions will be settled by the end of the year.

Ukrainian Parliament Discusses Chernobyl Problems

LD0502214591 Moscow TASS in English 2037 GMT
5 Feb 91

[By UKRINFORM-TASS correspondent Stanislav Volnyansky]

[Text] Kiev February 5 TASS—The Ukrainian parliament today began discussing issues in which all the Ukrainians are interested. Deputies will examine the draft concept for living conditions in some areas of the Ukrainian Republic with a higher level of radiation caused by the Chernobyl disaster, as well as bills on the status of a radioactive territory and the status of citizens affected by the Chernobyl disaster.

The aim of these legislative acts is to decrease the Chernobyl disaster's possible negative influence on human health.

The draft concept adjusts the earlier aggregate dose of additional radiation absorbed as a result of the Chernobyl tragedy and defines principles and periods of people's resettlement from contaminated areas.

The document also provides for permanent radiological control and a comprehensive ecological description of specific areas. The draft stresses that the aggregate radiation dose must exceed 0.1 rem per year.

The concept's provisions are to be implemented on the basis of and in compliance with bills submitted to parliament for consideration.

These documents emphasize that the Chernobyl disaster was the greatest tragedy which affected millions of people living on vast territories. Under the bills, the Ukraine will be declared an ecological disaster zone.

The statutes of the radioactive area and citizens stricken by the disaster are aimed at ensuring a scientifically substantiated approach to the radiation protection of the population, territories and the biosphere.

The documents provide for state control over the regime in radioactive zones, responsibility for its violation, a single system of registration and medical care of citizens stricken by the disaster, their social protection, indemnity, benefits and pensions.

Ukrainian Supreme Soviet Debates Chernobyl Measures

LD0702174291 Kiev International Service in Ukrainian
2200 GMT 5 Feb 91

[Excerpts] [Correspondent] Chernobyl was the main subject at the session today. I will remind you that Leonid Kravchuk, leader of the Ukrainian parliament, stressed in his speech at the World Economic Forum in Switzerland that, despite the great work being done by the republic government on solving complex Chernobyl problems, the situation remains aggravated. Kravchuk appealed for aid and expressed his hope that scientists and business people from Western countries would be interested and take part in this important work. An appeal from the Korosten City Communist Party Committee, Zhitomir Oblast, to the republic's deputies was circulated among the deputies today before the sitting started. It reads, in particular, that it is impossible to call the zone contaminated by radioactive nuclides anything but a source of ecological disaster. The people who live in it gave up all hopes regarding their future and the future of their children. The number of illnesses increases, especially among children. The appeal contains a demand to the deputies to finally pass a law which would defend the citizens of the republic who suffered from the Chernobyl disaster.

Therefore, Ivan Plyushch, the first deputy chairman of the Supreme Soviet who chaired the session today, suggested that the deputies examine draft laws connected with Chernobyl. These are: the concept of living on the territory of Ukraine with high levels of radioactive contamination as a result of the Chernobyl catastrophe; the draft laws on the status of territory contaminated with radiation as a result of the Chernobyl breakdown, and on the status of citizens who suffered as a result of this breakdown. One of the deputies attempted to block examination of these draft laws, referring to the primary importance of discussing economic problems, but practically no one supported him. Deputy Volodymyr Yavorivskyy, chairman of the parliamentary commission for problems of the Chernobyl catastrophe, delivered a report. He noted in particular:

[Begin Yavorivskyy recording] We should say that we have travelled the road from lies and falsehood to the truth. What is happening in the [Chernobyl] zone today? The situation is not improving—on the contrary, I would even say that the situation is aggravating. You know what tremendous problems are imminent regarding that sarcophagus [the concrete cover to seal the fourth power unit at Chernobyl]. We thought that we had driven that wounded beast under the sarcophagus. But should there be a weakest tremor, all those dividing walls may collapse and everything which is left in the reactor itself there may be the so-called dust explosion [as heard].

We must also mention the red forest [coniferous or pine forest which was contaminated] which we had cut down at one time. It is flooded now, and enormous tracts of ground water have been polluted with this red forest.

There is no guarantee that this surface water may not force its way through into the main subterranean basin and the Ukraine—or, possibly, not only Ukraine, but part of Europe today—may find themselves without any water at all.

This is the truth and this is the reality. But what is the root cause of all this? The root cause lies, if you wish, in the fact that the Ukraine has no right to glance inside, to put it figuratively, inside that nuclear fence, because the zone is under complete control of the central directorate. And I must state with full responsibility that those billions which they keep needling us about, which they allocate to us for elimination [of the Chernobyl breakdown consequence], as if they were giving us presents, are being pumped back to Moscow for the most part. The zone is working for the center and only for the center. Money is being paid to large capital projects institutes, which work in Moscow, for some hopeless projects.

And we have just recently received another idea from the center, in which it is suggested [to establish] a center on Chernobyl, an international center on Chernobyl near Moscow—not in Belorussia, not in Minsk, not in Kiev, where the epicenter of our disaster is. And the Ukraine government will be paying for this center's work. [end recording]

[Correspondent] Volodymyr Yavorivskyy then made a statement which aroused reaction in the hall, especially from Deputy Vitaliy Masol, the former leader of the Ukraine government, who was present in the chamber.

[Begin Yavorivskyy recording] I will have another opportunity to mount this podium in April and deliver a report about the causes and consequences of the Chernobyl catastrophe and from this podium name names of those heroes who were involved in lies, falsehoods, and hushing up. All this will be done. However, now I would like to say that, according to the facts that we have, there is every reason to call the government of Lyashko and Masol, who ruled the republic until recently, maybe unwillingly, I stress, unwillingly, the joint authors of genocide of the Ukrainian people. What has Chernobyl brought us to date? Its 120 martyrs who have radiation sickness [as received], its 3000 ill people, professionals from Chernobyl, I stress, professionals! And its 4,700 children who may in the near future acquire thyroid glands cancer. [passage omitted] [end recording]

[Correspondent] Then Hurenko, first secretary of the Ukrainian Communist Party Central Committee, spoke about the importance of paying money for damages or losses suffered by people.

[Begin Hurenko recording] As is known, the money for elimination of the breakdown comes from various sources. I do not want to overstress the fact that 100 million rubles will come from the party's till. I only want to say that the 100 million rubles will only be given for specific work. We will not waste the money; it should be spent on specific work and specific units. We know that quite a lot of money has been spent on these objectives,

and we do not see the situation getting better. [passage omitted: Yuriy Shcherbak, USSR people's deputy and leader of the Ukrainian Green Party, then mounted the podium].

[Begin Shcherbak recording] I would like to put forward several proposals on behalf of the Ukrainian ecological association Green World:

1. Elaboration of the law on atomic power engineering and nuclear security in the UkSSR [Soviet Socialist Republic] should be accelerated to ensure fuller legal support to Chernobyl problems and elaboration of the concept of national ecological security as a component part of state security should be started as a matter of principle. We are talking about a survival program for the Ukrainian people in conditions of genetic catastrophe. We should also understand that Chernobyl is a component part of the complex ecological problem of the Ukraine, including the zones of ecological disaster caused by chemical factors in other regions.

2. In order to put clauses of the Ukrainian nuclear sovereignty declaration into practice, I suggest that we immediately create a national commission for nuclear regulations, which exists in nearly every country where there is atomic power engineering, and also a national committee for protection from radiation. The Green World suggests that an international independent examination of atomic power stations in the Ukraine be carried out in order to check their work and security system. Decisions should be taken to open an international medical center and center of radiation ecology in Kiev. [end recording] [passage omitted]

Ukrainian Parliament Statement on UN Chernobyl Aid

LD0602092291 Moscow TASS in English 0823 GMT
6 Feb 91

[By UKRINFORM-TASS correspondent Stanislav Volynskiy]

[Text] Kiev February 6 TASS—The Ukrainian Parliament on Tuesday adopted a statement expressing gratitude to all UN member-states for having unanimously approved the UN General Assembly resolution on international cooperation in cleaning up the aftermath of the Chernobyl disaster.

"We thank all UN member-countries that supported the important decision and demonstrated their resolution to contribute to the development of international cooperation on the basis of general human values and new political thinking," the statement reads.

The parliament called on all the countries, their parliaments and governments, international governmental and non-governmental organizations, the public and individuals to do everything possible to effectively implement the resolution and render assistance to the Ukraine in cleaning up the aftermath of the Chernobyl disaster.

Chernobyl Criminal Proceedings Instituted

PM0802143591 Moscow PRAVDA in Russian 8 Feb 91
Second Edition p 2

[Unattributed report: "In USSR Prosecutor's Office"]

[Text] In connection with numerous appeals from people's deputies and items in the mass media on questions of the concealment of the true information about radiation levels in regions contaminated by radionuclides, the USSR Prosecutor's Office has carried out an additional check on the observance of legality in eliminating the consequences of the accident at the Chernobyl AES [Nuclear Electric Power Station].

The materials at the prosecutor's office attest that some ministry and department officials whose duty it was to resolve emergency tasks did not assess promptly the scale of the catastrophe or its possible consequences and failed to take the necessary steps to protect the population from the effect of radiation and to elaborate and implement a state concept for the population's safe residence in the radiation-contaminated territories.

In particular in the period after the accident they did not everywhere ensure the immediate organization of evacuation and preventive measures, ignored objective data on the radiation situation, and committed gross violations of the requirements of health regulations in burying radioactive waste. Hasty decisions were taken to construct population centers on territories contaminated by radionuclides and there was no proper monitoring of the course of agricultural work in the zones contaminated by radiation or of the sale of produce.

Some workers from the station and people who took part in eliminating the consequences of the accident received high doses of radiation. Part of the population of Chernobyl, Pripyat, and adjacent regions was also subjected to radiation. The health of the inhabitants of other nearby territories was also jeopardized. Enormous material damage was caused to the state.

Having examined the materials of the check, USSR General Prosecutor N.S. Trubin has instituted criminal proceedings with regard to the officials' responsibility for the abuse of their official position and the inadequate fulfillment of their duties—under part two article 170 and article 172 of the Russian Soviet Federated Socialist Republic Criminal Code, part two article 165 and article 167 of the Ukrainian SSR [Soviet Socialist Republic] Criminal Code, and part two article 166 and article 168 of the Belorussian SSR Criminal code.

The investigation has been assigned to a group headed by the USSR General Prosecutor's investigator for especially important cases. It includes investigators from the prosecutor's office organs of the Russian Federation, the Ukraine, and Belorussia.

Supreme Soviet Commission Notes Chernobyl Design Flaws

LD1102144491

[Editorial Report] Moscow Domestic Service in Russian at 1130 GMT on 11 February carries a four-minute report on the preliminary conclusions of the USSR Supreme Soviet Presidium commission set up to investigate the causes of the Chernobyl accident and the conduct of officials in the post accident period. Blame for the accident at one of the reactors in 1986 lies, among other things, on the faulty design of the reactor itself, according to the preliminary conclusion.

In an interview with correspondent Aleksandr Ruvinskiy, Yuriy Ivanovich Voronezhnev, senior secretary of the commission, says: "According to our preliminary findings, the accident at the Chernobyl Nuclear Power Station was caused not just by the negligence and carelessness of the staff, as official reports assert, but also by a number of flaws in the design of the reactor itself, and especially in the system of its management and maintenance." Voronezhnev says the commission has been working for five months, having attracted about 200 very highly qualified experts. It has been set up not with a view to replacing the work of the Procuracy, but with the aim of assessing everything that happened at the scene of the accident in 1986 and since. Voronezhnev says that at present "the commission is working on a draft law on the social protection of citizens who were affected by high radiation following the accident at the Chernobyl Nuclear Electric Power Station." "Work is now being done on this draft law and it will be submitted for consideration by our committee for ecology on 15 February," Voronezhnev adds.

Ukrainian Premier On Chernobyl Shutdown Plan

LD1302144391 Moscow TASS in English 1342 GMT
13 Feb 91

[by UKRINFORM-TASS Correspondent Anatoliy Grigoyev]

[Text] Kiev February 13 TASS—The program for the stage-by-stage shut-down of the Chernobyl Nuclear Power Station has been worked out by a decision of the Ukrainian Council of Ministers.

The program envisages the shutting down of the first and second power plants, respectively, in 1993 and in 1994, with the subsequent conservation of the reactors of the third power plant in the radioactivity levels have lowered, it will be possible to dismantle all the equipment and structures [sentence as received].

Ukrainian Prime Minister Vitold Fokin told UKRINFORM-TASS that in the past 10-15 years the development of electricity in the Ukraine was oriented at the construction of nuclear power stations.

This made it possible to decrease the shortage of fuel in the republic.

Besides that, nuclear reactors were regarded as preferable to thermal power stations for conservation reasons as highly effective gas purification equipment is lacking. The volume of electricity produced by nuclear power stations last year amounted to some 26 percent of the total amount of electricity.

At the same time, under public pressure the Ukrainian parliament decided to close down the Chernobyl Nuclear Station and imposed a moratorium on the construction of new nuclear power plants and on the increase of the capacity of the nuclear power plants operating in the Ukraine.

This cannot but affect the Ukraine's energy potential. And although by 1994 the Ukraine will cease to export electricity (mainly to East European countries—Hungary, Bulgaria, Romania, Czechoslovakia, and others), there will be the need for considerable cuts in the use of electricity in industry and in households.

Fokin said that the resolution of the Ukrainian Supreme Soviet about the termination of the functioning of the Chernobyl Nuclear Station and a moratorium on the construction of nuclear power stations is a law and should be enforced. He said there are no places in the Ukraine where nuclear power stations could safely be built.

"But we also have an alternative," the republic's prime minister said. The problem of using steam and gas power plants is now being studied in earnest, and they have great advantages over nuclear reactors and nuclear power in general.

Their efficiency is much higher and they are relatively pure sources of energy. One of the elements for such power plants is now being designed in Kharkov, but so far there are plans to purchase them from Italy. It is also intended to use unconventional sources of energy—including solar energy and energy of wind velocity, first of all, for meeting the requirements of the Crimea.

Republic Official Details Post-Chernobyl Ukrainian Health Data

91WN0180A Kiev LITERATURNIA UKRAYINA
in Ukrainian No 49, 6 Dec 90 p 7

[Interview with Ukrainian SSR Deputy Minister of Health Andriy Mykhaylovych Serdyuk, by Valentyna Pashchenko: "Will We Continue To Exist on the Earth?"]

[Text] After the catastrophe at the Chernobyl AES [nuclear electric power station], when nobody here knew anything yet, Finnish television immediately provided its people with detailed instructions about how to protect themselves and what medications to use in order to neutralize the small dose of radiation that they received. This was a very telling fact. It was like a prologue to the whole epic, which later included the May First parade

and disinformation and the claim, so stubbornly repeated, that Kiev residents will die not from radiation, but from radiophobia.

Why do I mention these things? Because little has changed since that time. Yes, today we are living in a state of euphoria because of glasnost and the democratization of our society. And we really can say whatever we want. But the one thing about which we still do not have complete information is Chernobyl, the extent of the ecological catastrophe. When this topic is raised, many highly-placed people begin—and this has become a socially-acceptable thing to do—to criticize their predecessors for the fact that they did not give the people honest, objective information, while at the same time, maintaining those predecessors' line. It is true that they say more, but they do not say everything.

That is why when the press published the frightful figures cited by the Deputy Minister of Health of the Ukrainian SSR, Professor of Medicine A.M. Serdyuk, they struck like an explosion. These figures were the topic of our discussion.

[LITERATURNIA UKRAYINA] Andriy Mykhaylovych, we would like to hear a more detailed analysis of the latest data about the state of health of the inhabitants of Ukraine. You said that you spoke about this at a meeting of the republic's Council of Ministers. I think that the general public also has the right to this information.

[Serdyuk] A whole host of people worked in order to determine this data—geneticists and our medical/statistical center and other specialists. And the figures reveal that here in the Ukraine the worst of all possible catastrophes has begun—the degeneration of the nation. What is the reason for this? There are many causes.

Over the last few years, we have seen a consistent decline in the birth rate. In 1989, it was 86 percent as high as it was in 1986. Taking into account the real mortality rate, this has led to a sharp reduction of natural population growth. Let me cite some figures: in 1987 it was 77.3 percent, in 1988—63.6 percent, and in 1989—only 38.6 percent of what it was in 1986. But closer analysis shows that last year was critical in this respect. In 1989, for the first time, the coefficient of reproduction, that is, the number per woman of girls who had reached the age of 15, fell below one. According to preliminary data, in 1990 it is rapidly rising.

A characteristic feature of mortality in the Ukraine is that the death rate among men in all age groups, and in particular, among young, employable men, is much higher than among women. This tendency is taking on a catastrophic character. In the mid-1960s, this difference in life expectancy was 3.7 years and was one of the largest in the world. But in 1989, men in the Ukraine lived on average 10 years less than women. So in only one generation, this index worsened by a factor of more than 2.7. Last year, the average lifespan was 65.3 years for men and 75.4 years for women.

[LITERATURNIA UKRAYINA] But things are not much better for women. It seems to me that there is an overall decline in health.

[Serdyuk] And this is caused mainly by the fact that women are overly busy working outside the home, in unsatisfactory and harmful conditions. Work-related illnesses account for 30 percent of the total number of illnesses discovered each year and occur primarily in chemical, light industrial and agro-industrial enterprises. Industrial chemical factors, compounded by the effect of the environment, result in ecologically-based illness: ischiadic illnesses have increased two-fold, spontaneous miscarriages, four-to-six-fold; every year, this happens to 40,000 women.

As a result of our barbaric attitude towards women's health, the total lack of contraceptive devices, we have the shameful distinction of being first in the world in numbers of induced abortions. In 1989, there were over one million. If we also consider what awaits women after abortions (30 percent suffer inflammation, 60 percent have secondary infertility, 22 percent have miscarriages, etc.), then let the economists calculate the cost to us of the government's attempts to economize—whether it be on buying contraceptives abroad or on building our own modern manufacturing plant.

Another indicator has been noted which should be cause for concern. The overall mortality of the republic's population is increasing: during the first six months of this year, in comparison to the same period last year, it rose by 6.8 percent. But the features of mortality also vary according to area. In large cities (particularly industrial ones) it has risen more rapidly, and in Kiev it has risen more dramatically than has ever been the case in times of peace—by 8.1 percent in the first seven months. This means that in only one year, the average lifespan declined by more than five years.

[LITERATURNIA UKRAYINA] Are you saying that the big cities of the Ukraine are being transformed into "black holes" which are swallowing and destroying people?

[Serdyuk] In general, our ecological situation is frightful. And our highly-praised society has been and continues to be responsible for creating this situation at a cosmic rate with no regard for the consequences. Donbas and Krivbas, the Dnieper and Dnester River regions, the coasts of the Black and Azov Seas, Zaporozhye and Chernovtsy, Chernobyl—this is a far from complete list of the zones of great human misery.

In most regions, air pollution exceeds the established limits by five to 20 times. Only last year, there were three billion cubic meters of polluted sewage in the republic. As a result of the aggressive application of agricultural innovations, we observe practically everywhere a threatening degree of pollution of agricultural production and food products by pesticides and nitrates.

A crying mismanagement, criminal impunity with regard to implementation of accepted decisions, primitive application of technology have led to a destructive effect on nature, and thus, on people. In the health of the nation, negative tendencies have clearly become apparent which are closely linked to the ecological situation. The lifespan of the republic's men is seven-eight years shorter, and of women, four-six years shorter, than in developed countries. In this respect, the Ukraine is in 20th place in the world. We have the sad distinction of being in first place in numbers of cardiovascular, allergic and oncological illnesses, bronchial asthma, sugar diabetes. Unfortunately, this list could go on and on. But the greatest tragedy is in the fact that, by worsening living conditions, we are causing irreparable harm to the health not only of the present, but also of future generations.

And what if the environmental pollution has reached such a level that it poses a real threat to the genetic apparatus of not only people's somatic, but also their sex cells? It is known that under normal conditions, every second fertilized egg cell dies in the mother's womb as a result of genetic cataclysm. If we allow such a degree of pollution of the environment that mutagenesis will lead to a doubling of the frequency of natural mutations (and this can happen if, for example, ionizing radiation occurs in doses of 100 bers over 30 years, that is, a person's reproductive life), then 100 percent of fertilized egg cells will be mortally afflicted, which will lead to inevitable catastrophe for humanity.

The study of the effect of the surrounding atmosphere on the genetic structures of sex cells of people from Zaporozhye and Mariupol, which are located in the most polluted Donetsk-Dnieper region, showed that the genetic effects of chemical environmental poisoning, as expressed in the biological equivalents of roentgens (bers) over 30 years, are 80 bers in Zaporozhye and 180 bers in Mariupol.

Thus, chemical environmental pollution in Zaporozhye has practically reached, and in Mariupol, significantly exceeded, the limit which, if maintained over 150 years, will lead to the physical and intellectual degeneration of the local population. But even if the air basin were cleaned tomorrow, the genetic consequences of the pollution would still manifest themselves for many decades to come.

[LITERATURNA UKRAYINA] The genetic consequences—you mean the ruination of heredity. Did I understand you correctly?

[Serdyuk] Yes. And that is a much more dangerous process than merely the slow dying off of the indigenous population. From the structure and dynamics of pathologies, it is possible to make conclusions about the beginning and acceleration of the destruction of the heredity of the population of Ukraine, which is accompanied by its physical and intellectual degeneration.

According to data from studies of school graduates (and this given our primitive methods of study) only 20

percent are completely healthy; the other 80 percent have some illness. Out of 2.3 million adolescents, almost one-half million have clearly diagnosed illness.

Over the last 10 years, there has been a five-fold increase in births of nonviable children and babies of abnormally low weight. Rapidly increasing is the number of babies born with clearly visible defects—from 1975, the number has doubled.

Congenital developmental defects among children in cities with polluted environments are three-four times more frequent than in relatively clean areas.

Children's mortality is slowly decreasing. But in comparison with developed countries, it remains high. In the first nine months of this year, it was 12.4 per 1000 births; this is twice as high as in Japan and Switzerland, and one-and-a-half times as high as in the U.S.

Against this background of declining natality, particularly threatening is the tendency towards an increase in the number of children with mental disorders. In one year, from 1988 to 1989, that number rose by 2.3 percent, and such children now constitute 3.6 percent of the entire maturing generation.

[LITERATURNA UKRAYINA] Please tell us, Andriy Mykhaylovych, are you somehow trying to fight this?

[Serdyuk] A year ago at a meeting of the UkSSR Council of Ministers, I raised the question of preventing births in cases in which we, physicians, can say after examination that the child would be an invalid for the whole of its life. Why is this done in other countries? Why is it that in Japan, before they get married, a future bride and groom must provide medical certificates regarding the suitability of their genetic potentials. It is determined who will have healthy children, and who may have sick ones. And people are warned: if you give birth, it will cost you this much—and they really add it up! Because there the state protects itself.

And here? A few years ago we boasted that we had built 20 children's homes, with 4000 places for orphans. Today, 80

of the children there are mentally ill. So 20 children's buildings have been transformed into mental hospitals. That is what we have come to. And we could have prevented it.

Using modern methods, one can determine in the 12-14th week whether a child will be born sick or well, and one can say, "Dear citizen, unfortunately your child may be an invalid. You want to be a mother—we will help you and next time everything will be okay." And I am certain that no woman would refuse.

The year before last, we prevented close to 400 births this way, and last year—800. but at the same time, last year, 13,800 children were born with physical and mental defects. We do so few examinations because we do not have sufficient equipment. And meanwhile, all

that is needed is to do an ultrasound examination of every pregnant woman—and we have 750,000 of them each year—and this would not be a problem.

So let's do a calculation: on the one hand R15 million, the value of the necessary equipment, and on the other, the misery of thousands of families, the parents' inability to work, the essential need to keep building more and more children's buildings and residences for invalids. Which is cheaper?

In this situation, the Supreme Soviet of the republic should force the government to allocate the money. We do not need much hard currency; we have agreements with foreign partners to create a joint enterprise, with the involvement of "Arsenal," to put out ultrasound equipment, but we need assistance from the UkSSR Council of Ministers. And as soon as possible. Because if the present situation continues for one or two generations (that is, over 30-60 years), the principal portion of the young, indigenous population of the republic will be composed of mentally and physically defective individuals.

The state of health in the republic is close to critical. I will cite you some terrible figures: we have 8.2 million recorded cases of cardiac illnesses, 0.7 million people with malignant growths, close to one million ill with chronic alcoholism, over one million with mental illnesses. Every year, close to 14 million people occupy beds just in the hospitals of the UkSSR Ministry of Health.

But, my dear people, over the ages, the Ukraine constantly renewed its genetic pool, compensating for the terrible devastations caused by Tartar-Mongol invasions, by wars—the civil war, the world wars, famine. But at present it is rapidly turning into a territory fit for settlement by other nations. So let us finally do something.

[LITERATURNА UKAYINA] Andriy Mykhaylovych, what do you see as the way out of this tragic situation?

[Serdyuk] First of all, we must quickly bring into effect economic, political, social, legal and community levers, in order to create conditions for the survival of the nation. It is essential to feed the people, create working and living conditions that are worthy of human beings, restore a clean environment, and finally make concrete efforts to care for the health of every person and the whole nation.

Secondly, in order to ensure a permanent scientific backing for the solution of these problems, we (the Republic Scientific Hygienic Center, the Worldwide Scientific Laboratory, the Ukrainian Red Cross, the Scientific-Engineering Center of the UkSSR Ministry of Health and a number of other republic and foreign organizations) are establishing a modern medical-social scientific center; we'll call it the "Survival Center." This will be a nongovernmental, independent organization which will be able to publish scientifically-grounded analytical data about the state of health of the people of

Ukraine, recommend specific economic and social measures for coming out of the crisis situation, make prognoses for the future. For work in the center we intend to bring in competent specialists from other countries too—geneticists, ecologists, physicians, biologists.

If you want, this will be the truth of the last resort: the independent, highly-competent thinking of scholars, aimed at helping our Supreme Soviet to make well-founded and truly intelligent decisions with regard to such questions as the ecology, the health of the nation, and related problems, such as food and working conditions. But to ensure food supplies—that will not be our problem. And that is why we should say to those who deal with this problem, in this case, the State Agricultural-Industrial Department: if you continue to feed us the way you feed us now, whatever scientists and physicians do will have no results.

Thirdly, of course, objective information should be provided to the society on a permanent basis about the state of mental and physical health and advice on how to improve it.

And, of course, perhaps first of all, we must solve without delay the problems linked to Chernobyl. Here in the Ukraine, the International Chernobyl Medical Council has been established (chaired by Yu.M. Shcherbak), which, along with the Ministry of Health, is supposed to harmonize, generalize and coordinate all actions related to external links. The problem is that international confidence in our official circles (including the Ministry of Health) has been undermined. For years they turned away all help, claiming that they could manage on their own. So the money, drugs and products that were sent did not get to the right place. Or things are done for political reasons, as happened with Cuba, when the Children's Fund made all arrangements through Moscow and placed us before an accomplished fact: send your children. You know the result—we lost three children. Or we are sent something which has already been paid for, and at the customs they demand that duty also be paid, or they do not let it through, or put up some other obstacles. So over every shipment there is a real epistolary war. One would think that everything arriving for Chernobyl victims should come in free of interference. In general, there has been so much unpleasantness around Chernobyl.

So the International Chernobyl Medical Council was created in order to establish direct links, without any middlemen. But in order for it to function, we need a resolution of the UkSSR Council of Ministers allowing certain things which only it can allow, in particular, duty-free transport of goods.

[LITERATURNА UKRAYINA] What is the present situation with regard to Chernobyl? One gets the impression that now, as before, we are alone with our problem.

[Serdyuk] Close to 1.8 million people continue to live in contaminated regions of the Ukraine. More than 150 persons, including almost 60,000 (!) children, are

afflicted by higher-than-permitted doses. And of these children, 13,000 received more than 200 rads. And 8,000 adults received more than 500 rads. That is the sad arithmetic.

In these zones, the incidence of general and children's illnesses is growing. There has been a significant increase in the number of premature births, cases of hemorrhage, hematological and endocrinological illnesses; people's immunological state is getting worse. Five operations have already been performed on swollen thyroid glands in children who were exposed to high doses of radiation.

These are deadly statistics. But unfortunately, things are moving very slowly.

[LITERATURNIA UKRAYINA] I recently found out that in Japan, after Hiroshima, there were no thyroid gland complications, because the medical care was well-organized.

[Serdyuk] We all criticize our pathetic medicine, but given that at present we spend R80 per capita on health, and we need a minimum of R280-300, it certainly cannot be better. If, let us say, in the United States, it is \$1350 and here, only R80 per year, one can see the difference.

Or let's consider these statistics: in the United States, spending on health is twice as high as on defense. In the United States, 11.9 percent of the gross national income goes for health, while here it is three percent. And if we take into account the difference in the levels of income of the two countries. . . So, let's consider, where does the state care about the people's health?

We should also say something about the value of lost health. For a long time we did not care about this at all, and even today, to be honest, we have not learned to do it. And for that reason, we simply do not recognize the value of our health. It is easy for the state to squander our health, and for us to do it ourselves.

In America, back in 1972, a special committee of the National Academy of Sciences proposed measuring damage caused to the population by ionizing radiation in terms of dollars. The experts on the committee decided to assess the loss of health from radiation of one person in the dose of one ber at \$12-120. Later, this approach was also recommended for the evaluation of economic damage caused by the action of chemical mutagens. If we take even the lowest assessment of \$12, then just those who participated in dealing with the accident at the Chernobyl AES should be paid by the state a minimum of 16 million (assuming that each one received 20 bers, which is a very low figure), and if we use the median assessment, the state should pay them close to 100 million. And then how much damage would the state have to pay to the population of the Ukraine for the restoration of its health, to those 6000 children, who received over 200 bers on their thyroid glands? Or to Kiev residents who after the first post-accident year had more than 1 ber of general radiation?

[LITERATURNIA UKRAYINA] Well, as I understand it, this is a rhetorical question, for, at least in the near future, our government will not try to deal with it. It does not have the money. But let us turn to the simplest question, that of drugs. Recently we were informed that next year, there will be only about half as many coming from abroad.

[Serdyuk] We have finally recognized the fact that the Soviet authorities have invested R15 billion into the pharmacological industry abroad. And now the countries of Eastern Europe have left us, and we have nothing from them and will have nothing from them. And our own factories are decrepit; they do not supply us with drugs (at present they supply only only 30-40 percent) and will not supply us tomorrow. That is our policy for you.

But when we established a joint enterprise in Borispol, we were accused of illegally exporting cotton wool. Listen, people, we set up an enterprise that works. It has to be paid for. Nobody gives us dollars, nobody wants to take our rubles. But the enterprise is here, it is working here, forever ours—and this is bad. When will we become wiser?

So the prospects for drugs are bad. As before, we receive foreign medications through Moscow. They do not give us any dollars for their acquisition. In February of this year, when I spoke in Moscow, it was still under Comrade Chazov, I raised the question of giving the Ukraine's portion of hard currency to the Ukraine. It is more evident to us what needs to be bought, taking into account Chernobyl and all our other troubles. But, as they say, on that we parted, and with the new minister, everything remains as before.

[LITERATURNIA UKRAYINA] Perhaps it is not at the ministerial level that this question must be resolved?

[Serdyuk] Yes. The Supreme Soviet of the Ukraine must say: we will not give you the hard currency that we earned. Here is your quota—20 percent, and the rest, 80 percent, is ours. The Ukraine must protect herself; after all, we have proclaimed sovereignty.

[LITERATURNIA UKRAYINA] Andriy Mykhaylovych, to tell you the truth, I am just stunned by these terrible facts. Tell me, why was this not discussed earlier?

[Serdyuk] It was discussed. But unfortunately, not with journalists. We submitted reports, but nothing was done. We tried to take some initiative. In particular, we brought geneticists together, established a coordinating council and are continuing organizational work for the revival of medical-genetic assistance to Ukraine. We are trying to reach the modern standard, but this is extraordinarily difficult. The government allocated all of R100,000 for the preparation of medical-genetic monitoring—for acquiring equipment and doing related scientific work. No funds have been allocated for actually doing the monitoring, that is, permanently following the state of health.

I also spoke to the Ukrainian Republic Council of Unions about the terrible conditions of work in our enterprises. Every year we declare with pride that we have taken tens and hundreds of thousands of workers out of unsatisfactory conditions. But we are also putting in the same number. Is it not time to put an end to such compromises?

Our Supreme Soviet should immediately examine the demographic situation in Ukraine, the state of health, life, work and food of the nation. We should feed our people. If we are to believe the figures, the republic is capable of doing this. But it turns out that it may be so in the figures, but is not in fact. Even having such a problem as Chernobyl, we have not been extended any favorable terms. When we asked the central authorities whether we could supply less milk, so that we could have clean milk for the affected regions, our request was refused.

[LITERATURNA UKRAYINA] Why do we ask? Are we sovereign or not?

[Serdyuk] Yes, and we should create conditions which would be worthy of people. We still do not have a law—and I believe that we should pass it as soon as possible—on the protection of the dignity of every person. Such a law should be in place, but it is not.

And we must take concrete, major measures. I will cite one example: we must immediately put into place a national program for the maintenance of the nation's gene pool, and, naturally, back it financially. Extraordinary measures needed to be taken 10 years ago at minimum. And there is experience in doing this; we still have to do it, as soon as possible, although already it is too late to get radical results. The catastrophe has gone too far; the inertia of genetic processes is very high and what is happening will gain strength if radical measures are not taken.

Today there are 52 million of us in the Ukraine. How many there will be tomorrow, or at the start of the new millenium, what we will be like, will depend on us and only on us.

[LITERATURNA UKRAYINA] At present, it depends mainly on whether our government, the Supreme Soviet of the republic, want to hear us.

Who will finally take the part of the Ukrainian people? It seems that no lesson has benefitted us, nothing has taught us anything—neither Chernobyl, nor Chernovtsy. Everything depends on whether our present republican leadership has the wisdom, resolve and courage to make a radical change and truly defend the sovereignty which it has declared. For we are facing the abyss and nonexistence.

P.S. While these materials were being prepared for print, Andriy Mykhaylovych Serdyuk exchanged his position in the Ministry of Health of the Ukrainian SSR for scientific work, taking on the chairmanship of the

Republic Scientific Hygienic Center of the UkSSR Ministry of Health. And as he himself assured us, he has no intention of abandoning the attempt to solve the acute problems which were discussed in the interview.

RSFSR Prime Minister Visits Chernobyl Radiation Zone

*LD0602204591 Moscow TASS in English 2021 GMT
6 Feb 91*

[By TASS correspondent]

[Text] Bryansk, February 6 TASS—Investments in the construction of housing for Russian Federation citizens who suffered from the Chernobyl disaster will increase 35-fold as compared with last year, Russia's Prime Minister Ivan Silayev told people in Novozybkovo at a meeting of residents of the Russian federation's western areas that border on Belorussia and the Ukraine.

About 1.7 billion roubles are expected to be utilised in the construction of villages and townships, gas pipelines, power transmission lines and roads on clean territories this year, he said.

More than 43,000 people who live in the zone of rigid monitoring of radiation levels are to move to new houses this year and up to 110,000 people next year, Silayev added.

The prime minister of the Russian Federation also met workers and engineers at the Novozybkovo "Induktor" Plant, which manufactures electric heating furnaces and technological laser installations.

In response to workers' questions, Silayev said that "a genuine scope of the disaster has been ascertained over the past months."

"This is really a zone of national ecological disaster, inhabited by about three million people from five regions of the Russian Federation. [The] Bryansk region became the epicentre of the radioactive contamination. The average radioactive contamination level reaches 120 curies per square kilometre in some populated areas of the region," he said.

Addressing people's deputies to the regional council in Bryansk, Silayev said that the formation of the Russian Federation government's State Committee for the Elimination of the Aftermath of the Chernobyl Accident had been completed. Serious adjustments and supplements had been introduced to the programme for urgent and long-term measures to ensure safe living conditions for the population, and government decisions had been taken to improve the provision of affected areas with food, household equipment, etc.

Official on Nuclear Power Station Building in RSFSR

*LD0502232791 Moscow Domestic Service in Russian
0434 GMT 5 Feb 91*

[Interview with Vladimir Nikolayevich Silayev, member of the Committee for Industry and Power Production, by presenter Nikolay Kulikov, place and date not given—recorded]

[Text] [Kulikov] At the session of the committee for industry and power production, it is proposed that the draft decision by the Cabinet of USSR Ministers on the building of nuclear power stations on the territory of the Russian Soviet Federated Socialist Republic [RSFSR] be examined. Vladimir Nikolayevich Silayev, a member of the committee, speaks about the reasons for stating this issue.

[Silayev] At the present time we are in such a state that in our Republic the shortage of energy-generating capacity amounts to something like 5 million kilowatts, approximately. Now areas like the center of the Republic, Chita Oblast, Buryatia, the Northern Caucasus and the Urals are suffering from a shortage. In connection with the fact that 18 percent of the electricity-generating stations are already worn out in general and are virtually at the end of their operating life and approximately 40 percent will become run down in the forthcoming 5-year plan, we should naturally pay very great attention to the fact that our basic power generating industry should enable us to live normally, enable the national economy to be developed, and to supply our housing, hospitals, nursery schools and schools and everything necessary with heating and electricity. This is very important. This is why the committee is examining this issue. We are inviting very important experts from many Union bodies of power. The fact is that at the present time, you see, one cannot build a power generating facility without the local bodies of authority. Therefore, we are inviting the chairmen of the executive committees of Chelyabinsk Oblast, Rostov Oblast, Nizhe-Novogorod Oblast, and Voronezh Oblast. At the same time all the most eminent experts will be there.

What do we want to hear? We would like it to be made clear that if the Tatarskaya nuclear power station is not to be built, then this should be defined by a decision by the USSR Council of Ministers and it should be decided what we will do. You see, large sums of money have been invested in it. It must be decided how this area will develop further from the point of view of utilizing those resources that have already been invested. Or has the Chelyabinsk Oblast executive committee now adopted a decision to build the Yuzhno-Uralsk Nuclear Power Station? We should now define the position precisely and define the building schedule, the order and conditions of construction.

In order to coordinate all those things, we decided to give the issue a hearing at the committee. However, the fact is that there is such a spectrum of social contradictions, of

public opinion, that without a hearing in parliament, without the attitude of the people's deputies to this issue, the Council of Ministers finds it difficult to adopt an overall decision. This is the situation.

[Kulikov] Vladimir Nikolayevich, the issue of safety probably worries everybody. Will it be examined?

[Silayev] Without fail. This is the main issue. In our draft decision we wrote first that any project will be examined by experts, both experts on ecology as well as experts on safety.

[Kulikov] It is important that the experts should be independent as well.

[Silayev] Naturally. We have also insisted that a number of safety measures be put into force at stations that are already in operation. We also plan to formulate the question that our science should make its contribution in developing reactors with inbuilt safety features. This means that no matter what happens on a reactor installation, it should automatically shut down without intervention by staff. When we have systems like this, I think that our public will not worry about it and there will be no questions. This is realistic. That is not a utopia.

Incentives Offered for Nuclear Power Station Localities

*PM0702113691 Moscow IZVESTIYA in Russian
26 Jan 91 Moscow Edition p 1*

[Unattributed report: "Benefits for Those Who Accept Nuclear Power Stations"]

[Text] The USSR Cabinet of Ministers has adopted a resolution on measures to increase incentives for local organs and the population when nuclear power industry facilities are sited on their territory. A long list of benefits and incentives is stipulated. Furthermore, the governments of union republics with oblast subdivisions are advised to allow kray and oblast soviets to retain a large proportion of the tax on profits from the activities of nuclear power stations sited on their territory and subject to payment into the republic budget.

1990 White Sea Pollution Blamed on Rocket Fuel Spill

*PM0702092191 Moscow KOMSOMOLSKAYA
PRAVDA in Russian 5 Feb 91 p 1*

[Unattributed untitled report under: "Have You Heard? Did You Read?" rubric]

[Text] Viktor Goryachev, a senior scientific associate of the USSR State Committee for Environmental Protection Science and Research Institute, stated in an interview with the POSTFACTUM Agency that research carried out by indirect methods confirms the hypothesis that the fauna of the White Sea was poisoned in May 1990 as a result of an accidental discharge of rocket fuel by a Soviet submarine in 1989.

Scientist Denies Submarine Caused White Sea Pollution*LD0702123891 Moscow TASS in English 1221 GMT 7 Feb 91*

[By TASS correspondent Veronika Romanenkova]

[Text] Moscow February 7 TASS—The pollution of Dvina Bay in the White Sea destroyed masses of sea fauna in May 1990. The pollution was caused by the "short-term influence of toxic substances, high-condition fuel", research associate at the Soviet Environmental Protection and Natural Reserves Scientific and Research Institute Viktor Goryachev told TASS.

Goryachev said this was the conclusion drawn by Soviet specialists who studied the situation in the region. He did not deny that such high-condition fuel is used by missile engines. But he denied recent reports by the Soviet POSTFAKTUM Agency that the pollution resulted from an emergency discharge of missile engine fuel by a Soviet submarine in 1989.

"If this were true, the White Sea's pollution would have occurred not in May 1990, but in 1989," he said. "At the bottom of Dvina Bay, a special commission has discovered a great number of dead animals, including crabs, mussels, mollusks and starfish."

"Biological and soil tests have shown that the concentration of hydrocarbons, nitric and lead compounds in the region has increased ten-fold," he said.

The scientist noted that such ecological catastrophes happen in the world several times a year for various reasons and "specialists cannot prevent their disastrous effect".

Soviet-Finnish Ecological Seminar Ends in Petrozavodsk*LD1102092391 Moscow Domestic Service in Russian 1800 GMT 10 Feb 91*

[Text] A Soviet-Finnish seminar has ended its work in Petrozavodsk. It was organized by the Karelian State Committee for Environmental Protection and the Finnish Ministry of the Environment. "The main task of the seminar," Olli Ojala, Finnish minister of the environment [title as heard] and leader of the consultative delegation, said to our correspondent, "was to study a joint project with Karelia in the area of environmental protection. Finnish specialists are worried by the state of ecology in areas bordering the USSR and they will do everything possible to introduce nature-protecting technology at Karelian enterprises." In the course of the meeting, specialists of a number of Finnish companies in this delegation acquainted Soviet colleagues from Karelia with their experience in this area.

Radioactive Waste Storage Issue in Novgorod Oblast*LD0502135691 Moscow Central Television First Program Network in Russian 1200 GMT 5 Feb 91*

[From the "Television News Service" Program, by TASS correspondent Troyanovskiy]

[Text] The burial and storage of radioactive waste, and waste from chemical and bacteriological production by units of the USSR Ministry of Defense at (Suminki) Station in Khvoyninskiy Rayon in Novgorod Oblast did not take place and is not taking place at the present time. This is a quotation from the answer by Marshal of the Soviet Union Yazov, USSR minister of defense, to a question from Averkin, people's deputy of the USSR from Novgorod Oblast.

The reason for the concern of the inhabitants and the question from the deputy was one of the subjects of the 600 seconds television program which told millions of people that radioactive waste was stored in the sand quarry in Suminki. Evidently there was no sensation and we have to wait for a sensible answer from its author, the television journalist Aleksandr Nevzorov. So far, there has been no such reply.

Defense Minister Denies Rumors of Radioactive Waste at Sominka*LD0502143591 Moscow TASS International Service in Russian 1331 GMT 5 Feb 91*

[By TASS correspondent Viktor Troyanovskiy]

[Text] Novgorod, 5 Feb (TASS)—"The burial and storage of radioactive waste and of waste of chemical and bacteriological production, by subunits of the USSR Ministry of Defense, at the Sominka halt, Khvoyninskiy Rayon, Novgorod Oblast, has not been carried out and is not being carried out at the present time." One would like to hope that such a categorical answer by Dmitriy Yazov, USSR minister of defense and marshal of the soviet union, to a question by Vladimir Averkin, a USSR People's Deputy from Novgorod Oblast, would reassure the local population. Especially as it was corroborated by the conclusions of the commission made up of deputies from rayon and rural soviets and specialists. The research undertaken by them has shown that the concentration of radioactive elements in the air and soil in the region of the Sominka halt corresponds to normal background level.

A topic from the "600 seconds" television program, communicated to millions of television viewers, about radioactive waste being stored in a sand quarry in Sominka, was the reason for villagers' alarm and the deputy's question. A sensation, fortunately, did not occur. But an intelligible answer from its author—the television journalist Aleksandr Nevzorov—has not yet been successfully received.

Moldovan Ecological Movement Established in Kishinev

91WN0219B Kishinev SOVETSKAYA MOLDOVA
in Russian 20 Nov 90 p 4

[Article from Moldova-Pres: "Ecological Movement Association Created"]

[Text] The constituent congress of the association: "Ecological Movement of the Moldovan SSR" was held in Kishinev on 15 November.

A particular objective of the program of the new formation, which brings together all of the republic's organizations of this profile, is to summarize the immediate ecological problems and issues encountered in the cities and rayons, and to organize a mass campaign having the purpose of persuading the government to proclaim the territory of the Moldovan SSR an "ecological disaster zone." This would facilitate development and financing of major ecological programs such as "Dnestr," "Budzhak" and "Prut." Another objective is to develop the conception behind a unique "survival program" called upon to concretely influence economic factors with the goal of reducing pollution of the environment, improving the ecological balance of geosystems and upgrading the people's living conditions.

The idea that the "Ecological Movement" also presupposes peaceful conflicts is quite clearly evident in the program adopted by the association as well. In other words the association's members are taking a political stand in favor of demilitarizing both banks of the Prut, and a social stand in favor of replacing all production processes which are destructive to nature, irrespective of the sphere of activity.

Conflicting Claims Over Increased Radiation in Uzhgorod

PM1202094191 Moscow IZVESTIYA in Russian
8 Feb 91 Union Edition p 2

[From roundup of IZVESTIYA, TASS, INTERFAX, and SIBINFORM reports: "What Is Background Radiation in Transcarpathia"]

[Text] In its 4 February issue our newspaper carried an INTERFAX Agency report that Transcarpathian Public Health Service staffers had recorded a steep increase in the radioactivity of the air.

Ukrainian Radio journalists asked A. Budz, head of the radiological department of the Transcarpathian Oblast Public Health Epidemiological Station, to comment on that report. She declared: "I do not know where the INTERFAX Agency got the information about an increase in radioactivity. The background here is normal now. The report carried in IZVESTIYA only added to the panic."

However, an INTERFAX correspondent reported that under pressure from the press and from agitated inhabitants, she nonetheless had to admit that there had been an increase in the background. What is more, the department's silence on such a serious question has really alarmed deputies of the Uzhgorod City Soviet. Specialists invited to the session were quite unable to give an intelligible reply concerning the level of background radiation.

Popular Pressure Forces Cutback at Odessa Fertilizer Plant

PM0702112991 Moscow Central Television First
Program Network in Russian 0330 GMT 5 Feb 91

[From the "Utro 120 + 30" program: Reportage by S. Fateyev, B. Zamchinskiy, identified by caption, from Odessa]

[Excerpt] [Announcer] At one time Odessa was described as the gem of the Russian guberniyas. Now ecological passions are raging in Odessa around the Odessa Port Plant on the shores of the sea.

[Fateyev] This is the modest title of a gigantic chemical plant: Vast quantities of ammonia, which is supplied via a pipeline from Tolyatti, are stored and transloaded here, and used in the production of mineral fertilizer. The Odessa Port Plant sells output worth millions of dollars to foreign clients annually. It is a veritable hen that lays golden eggs. However, of late some people would like to either clip this hen's wings or shorten its legs, or altogether wring its neck and gut it. With this end in mind 300,000 rubles have been spent on the country's first Odessa-wide referendum. The overwhelming majority of Odessa inhabitants, who believe that the plant threatens their health and lives and that it does not share its profits with the city, have called for the immediate closure, if not of the whole plant, then at least of its dangerous production units.

The referendum has borne fruit. The leadership of the former Ministry of Mineral Fertilizer Production, which now passes under the name of the "Agrokhim" Association, together with the local authorities, has decided that it is possible to reduce to one-fourth, that is to a safe level, the quantities of liquid ammonia stored here, to halt the plant's expansion, and, of course, to let the local authorities have a share of the profits.

[passage omitted comprising interview with R.B. Bodelan, chairman of oblast soviet and executive committee, and first secretary of the Odessa Party Committee]

Sochi's Chernobyl Decontamination Measures Noted

PM1102155791 Moscow IZVESTIYA in Russian
11 Feb 91 Union Edition p 2

[Correspondent Aleksandr Dergachev report: "Traces of Chernobyl in Downtown Sochi—900 Radioactive Hotspots Discovered in Sochi's Tsentralnyy Rayon"]

[Text] Sochi—Traces of Chernobyl have been discovered in the most unexpected places—residential suburbs along Donskaya Street, as well as on Krasnoarmeyskaya Street, Gagarin Street, and Tsvetnyy Boulevard. They are usually found in drains, on lawns, and under trees and bushes. Clearly, radioactive particles have been washed down by the rain and have concentrated in specific areas. Incidentally, there are “hotspots” covering quite impressive areas—an area measuring 3 by 25 meters in front of the Winter Theater, and the lawn in front of the gorispolkom [city soviet executive committee] will have to be dug up.

Painstaking work is being done in Sochi by the Koltsovskaya Research and Survey Expedition from the USSR Ministry of Geology's “Geologorazvedka” Production Association on the instructions of the RSFSR [Russian Soviet Federated Socialist Republic] Council of Ministers. Last year the expedition discovered 400 “hotspots,” which were immediately decontaminated. But it turns out that Chernobyl has polluted the resort city to a far greater extent. According to a report from V. Samoylenko, chief of Sochi's Tsentralnyy Rayon Civil Defense Staff, 200 of 900 “hotspots” have been decontaminated. This work is being tackled by the “Kommunalnik” Cooperative, which is working with the civil defense staff under contract. Contaminated soil is removed to the region of the Mamayskiy Pass, where it is buried in a special container. This operation is being financed by a deputies' sponsored fund. The city association of the “Chernobyl” League has opened an account, No. 000700725, at the Sochi Branch of the USSR Bank for Industrial Construction.

Radiation and Chemical Sabotage Against Georgia Claimed

AU0602173191 Tbilisi Domestic Service in Russian
1530 GMT 6 Feb 91

[Text] The first session of the Temporary Commission for the Investigation of the Consequences of the Radiation and Chemical Sabotage Against the Republic has completed its work. The commission was created by the Georgian Supreme Soviet Subcommission for Questions of Public Health and Social Protection. As reported to the participants of the session by Maugli [indistinct] Chkhikhvadze [indistinct], candidate of medical sciences, member of the management of the Iliya the Just All-Georgian Society, foodstuffs contaminated with radiation have been delivered to Georgia since 1986 from various oblasts of the Ukraine, Belorussia, and the Russian Soviet Federated Socialist Republic that had been affected by the Chernobyl catastrophe.

As a result, the incidence of acute leukemia in Georgia has doubled since 1986; several cases of spontaneous balding in children have been reported.

The second question discussed concerned the situation at the republic rehabilitation center for children, where a radiation background higher than normal was detected.

Functions were distributed among the members of the commission. The sanitary and epidemiological center [stantsiya] will be in charge of making decisions on the quality of the foodstuffs that are being delivered to the republic.

Gruzgeologiya Director Reviews Ecology Efforts in Georgia

91WN0218B Tbilisi ZARYA VOSTOKA in Russian
6 Dec 90 p 2

[Interview with Gruzgeologiya Production Association Director Irakliy Gogitidze, by Irina Cherkezishvili under the rubric: “Ecology and the Economy”: “Consumption Alone Is Criminal”; date, place not specified]

[Text] It is no secret that the ecological situation in Georgia is complicated. And in spite of all efforts to change something, there have not been many moves. There are more than a few reasons for this, and just as many explanations. Yet one thing is certain—we have organizations on which to a great extent depends just how capably and with the least risk we can use nature's gifts. After all, the time has passed when it was possible to take everything we wanted from nature. Life has shown that sooner or later it comes time to pay.

The Gruzgeologiya Production Association is one such organization. I asked production association Director Irakliy Gogitidze to describe the problems that the association must solve in the vein of ecological stability, but of course, not to the detriment of the republic's economy:

[Gogitidze] Works of a geological nature have been conducted over the course of 20 years in the system of the association. Among the most important research studies we may count the engineering-geological studies of the territory of Georgia, aimed at determining the level of involvement with dangerous geological processes. Put simply, these are landslides, flash floods with debris, and certain other processes with decisive significance for the placement in various mountainous regions of national economic sites, settlements, and individual structures.

For several years the association has also conducted rock formation monitoring. And here this is closely connected with the economy. Observations are constantly being made on the nature and scale of the spontaneous geological processes in the regions of intense economic assimilation. Their results permit timely reporting on danger to the appropriate directive organs, ispolkoms of local soviets. For over 10 years there has been intensive research and work to eliminate, retool and equip old, abandoned pits, potential sources of depletion or pollution of underground water.

It seems to me that overall, we forecast the change in the strategic trends in environmental protection and effective utilization of natural resources in time and correctly

by having created in 1979, for the first time in the Soviet Union, a special party to control environmental protection.

Based upon the experience already accrued and the need for a comprehensive solution to the problems of the ecology, we began to develop a program for action unlike any the republic had ever seen. Its significance is hard to overestimate, unless we consider the scale of the impending tasks. Judge for yourself. The program proposes the unification of existing conceptual approaches, acting incrementally in the study of individual components of the geological environment, and involving them in the system of scientific, methodological, and production research with a concrete designation of the types of research and the terms for conducting it. Under these conditions, each successive stage of the program takes into consideration in retrospect the results of the previous stages.

The ultimate goal of the program is to create a monitoring environment within whose limits the mechanism of adopting decisions in the mode of the automatic system of management must function. In addition to the departments and organizations concerned, the system's consumers will be first and foremost state organs, and the investors our economy needs so much, which is important under the conditions of the transition to a market.

As far as the geo-ecological program is concerned. It is constructed such that at the early stages of its assimilation it would be possible to receive a full description of the radioactive and geo-chemical situation across the entire territory of the republic, data on the pollution level of underground water, and the determination of harmful elements such as heavy metals, pesticides, mineral and organic fertilizers in the air. The level and nature of the integrity of the earth's resources is a separate discussion.

The zoning of the republic's territory by the scale, nature, and severity of the violation of ecological balance is begun on the basis of the data obtained in the initial phase. In individual locations—within the boundaries of physical-geographical or administrative units—more detailed geo-ecological studies will be conducted, including the study of the ecological state of individual cities—Tbilisi, Rustavi, Kutaisi, Sukhumi, Borzhomi, Kaspi, and others.

Concrete parcels and adjacent territories of major industrial enterprises, ore-enrichment complexes, and territories with intensive irrigation and drying will also become the objects of research. Republic, scientific production, control, environmental protection, and other organizations, in short, all those who cannot but be concerned for the future of our children and grandchildren must join in executing the program.

The ecologicalization of the economy is one of the most important tasks of today. All the more so because the time is coming when in all instances, the ecology must be

given more attention than ever. The market spoils no one. This is understandable when it happens with people. But such an attitude toward nature cannot be permitted. Today, to be just a consumer is criminal.

Wisdom of Water Project in Caucasian RSFSR Questioned

91WN0212B Moscow TRUD in Russian 17 Jan 91 p 3

[Article by Yu. Kostinskiy: "Half a Billion for...A Catastrophe? 'Projects of the Century' Continue To Exist"]

[Text] Many think that the diversion of rivers in our country is over with. This is an error! The redrawing of the physico-geographic map of our country is continuing.

Here is just one specific place: the Western Caucasus, the Karachayevo-Cherkess area. It is planned to "turn" and "divert" the mountainous rivers of Bolshoy Zelenchuk, Marukha, and Aksaut (the last two, joining, form the Malyy Zelenchuk) into the Great Stavropol Canal. The Zelenchuks flow into the Kuban beyond the range of the canal, and now it is necessary for them to flow in front of it. Then new water will enter the canal.

This is a relatively modest construction job in scale—not on the order of those rivers that it has already been possible to save from being turned from north to south—which will cost us, the taxpayers, about a half billion rubles. One-fourth of this sum has already been put into it, which would have been most welcome for replenishing the budget deficit. But let us examine why an offensive has been launched on the beautiful Caucasus landscape. Perhaps the game is worth the candle?

...At one time, in years not that long ago, at first the Nevinnomyssk and later the Great Stavropol Canal cut through the arid lands of Stavropol. And now 70 percent of the water of the once mighty river of the Kuban flows irretrievably into the irrigation system. Of course, this was done for good reasons—to improve conditions for farmers in fertile rayons. But the result?

The productivity of the land was not raised noticeably. Only the structure of the sowing area was changed. Wheat was planted previously, and now—rice. Are there other results?

Oh, yes! Two years ago one of the laboratories of the Institute of Geography of the USSR Academy of Sciences concluded a study of the soil of the southeastern European part of the USSR. In addition to Stavropol and Krasnodar Krays, the research also encompassed other oblasts of the region, but the significance of the findings for the zone of the two canals is not reduced by this. We will not present convincing quotations from the article, which was published in the journal PRIRODA (No 2 for 1990), on the results of this important research, but we will formulate the main conclusion: A degradation of the soils has occurred, they are ruined.

The entire agrarian strategy in the region has turned out to be wrong. The traditional drought-resistant farming and pasture cattle breeding here, the forest reclamation methods for collecting moisture in the soil, the compulsory fallow, and the long "breather" for the soil—all of this was drastically and unjustifiably changed by irrigation farming. No attention was paid to the recommendations of G.N. Vysotskiy, the Russian soil scientist and forestry specialist. But his findings were used by the practical Americans, and, owing to forest belts, moisture is preserved in the enormous spaces of the Midwest, where natural conditions are similar...

And now, a little more information. By passing water through the Great Stavropol Canal, and along its distribution network, we are losing 40 percent, as is customarily said, of "life-giving moisture." The land turns into marshes along the canal, and the homes are flooded. Just close to Ust-Dzhegut, 20 powerful pumps pump excess water out of drain holes. Hundreds and thousands of hectares of pasture land salinized "thanks" to this water use are written off in Stavropol annually.

Now what—will new rivers hurl "watering" actions into this theater?

But we have by no means related everything about the results of the irrigation action, more correctly, the inundation epic. Every schoolboy knows where the Don and the Kuban flow: into the Azov Sea. But inasmuch as this in fact is half the Kuban and practically half the Don, the designation Dead Sea would be very appropriate for the Azov today.

The fact is that the former water-saline, hydrobiological, and hydrochemical regimes of the sea, as the saying goes, departed this life. The solid flow of the major rivers was also sharply reduced (it seems that the sea also needs mountain pebbles), the sediment-forming processes were changed, and the shorelines were weakened. Little fresh water comes in, and the salinity of the sea is rising sharply. And inhabitants along the shoreline are beginning to forget about many of the commercial fish of this sea—which was at one time the most productive in the world. But jellyfish have reproduced...

It is not difficult to predict the future fate of the Sea of Azov. Because we already have a most glaring example—the ruined Aral, the victim of a similar "irrigation strategy."

If the planned diversion of the Zelenchuks into the canal is implemented, another 1.2 kilometers of fresh water will be removed from an unfortunate reservoir that is deprived of fish, according to the data of V. Novozhenin, chief engineer of the diversion. Is it not time to invest money now to return to the Azov Sea the fresh water that was taken away from it?

But this still is not all of the fruit of today's approach to the Caucasus with dynamite and bulldozers...

Tell me, do you want to visit paradise? Then you must go to Arkhyz, Dombay, and Teberda. "The Caucasus made a fantastic impression on me," said FRG Chancellor Helmut Kohl, who visited Arkhyz recently. "There are beautiful places—mountains, forests... Most of all, I liked the virginity of nature in the Caucasus, the meadows and the grass that still do not know artificial fertilizer." The chancellor expressed a desire to return here again as an ordinary tourist.

Well, the chancellor should hurry up with his return visit. Because it is for these places that a catastrophe is being readied. It will arrive with the construction of dams and reservoirs on the Aksaut River and with the diversion of rivers. One hundred and fifty hectares of forests will be flooded in the Kyshkyt meadow and the road at Volchye Vorota that leads to the upper reaches of the river where a mine settlement, rest facility, tourist refuge, and mountain pastures of two large kolkhozes are situated. In the very first year, low-water rivers and springs that are connected to the Zelenchuks with mutual brooks will disappear immediately in several rayons. The artesian wells containing water conduits will dry up. The residents of dozens of Circassian, Abaz, Nogay auls, and Cossack stanitsas and small villages will be deprived of water entirely.

The microclimate of the waterless villages will become more arid. On the other hand, owing to the new reservoir and canal, there will be an increase in humidity in the rayon of the Main Caucasus Mountain Range. Dombay, Teberda, and Arkhyz will be deprived of many sunny days. The interference in nature will not occur unnoticed in the Teberda and Caucasus reserves.

The initiators of the diversion of the waters of the Bolshoy and Malyy Zelenchuks literally forgot that the Caucasus is one of the most seismically active rayons of the country. A narrow strip of the northern slope from the valley of these rivers to the Military-Georgian road is part of the most dangerous zone, a first seismic category zone. And it is in this rayon that construction of a reservoir is proposed! And if an earthquake destroys the dam, the water will rush into the valley, sweeping away everything in its path...

Is it not worth stopping and giving the diversion more thought: Can electric power and water irrigation be achieved at such a price (especially, as it appears, an unwarranted price)? Is it necessary to intrude on nature in this way?

These questions were raised more than once. Chief engineer of the diversion project V. Novozhenin reassured the public: "The economic feasibility of the project was examined by a state expert commission of the USSR Gosplan [State Planning Committee]—the highest expert organ of the country..." But about the ecology here—not a word.

Of course, wrote V. Novozhenin, this project was also examined in the "ecological part of the USSR Academy of Sciences." The main thing that interested the

academy, in his words, was the question about whether the sky will be sufficiently clear for the large azimuthal telescope of the Zelenchuk astrophysical observatory. Will the stars not be blocked out by evaporation from the reservoir? It turns out that no, the stars will continue to be bright.

Absolutely no one programmed the whole complex of this region's approaching problems. The project, which was developed in the 1960's by the "Gidroproyekt" Institute of Minenergo [Ministry of Power and Electrification] and sanctioned by experts of USSR Gosplan (with an itemized listing approved in the State Committee for Construction Affairs), was adopted. The next "construction job of the century" is being implemented with mechanical precision by the trust "Sevkavgidroenergostroy" [North Caucasus Hydropower Construction] of the same USSR Minenergo.

But perhaps we have had enough self-made ecological catastrophes?

Institute Director Examines Environmental Degradation in Northern Siberia

91WN0213A Moscow SOYUZ in Russian No 49,
Dec 90 p 14

[Article by Vladimir Kotlyakov, director of the Institute of Geography of the USSR Academy of Sciences and USSR people's deputy: "There Is No Retreat—Behind Us Is the North Pole"]

[Text] The Arctic and the North are the last major reserve of territory and resources in our hemisphere and in our country. Here, over an area comprising almost half of the Soviet Union, less than 12 million people live presently; but already visible here are also alarming gaps and defects in the policy and practice of economic, social, and cultural development.

Each year prospectors and drilling technicians in the north of Western Siberia abandon more than 1,500 so-called pits, that is, exhausted bore holes. In the south, perhaps, nature would somehow heal itself of these wounds. But in the tundra they remain for many years as monuments to ecological savagery. The disorderly movement of tractors and off-road vehicles, especially in the summer, is similar barbarity.

The time has come to seriously review our plans: Are we so in need of the resources of the North, and is there no alternative to them?

At the same time the northern environment is in need of a package of specific legislative acts and administrative regulations. We need a special normative environmental base—in particular, stricter rules on allowable concentrations of pollutants and rules on allowable volumes for their disposal. Technologies that produce little or no wastes and cleaning equipment should be introduced here sooner than to other less ecologically vulnerable places. At present the reverse is taking place.

For example, the Norilsk Mining and Smelting Plant, releasing into the atmosphere about 2.2 million tons of sulfur oxide annually, is in need of immediate, emergency measures. After all, the self-cleaning action of the air works very slowly here, inasmuch as stagnant anticyclonic processes predominate in the atmosphere. The processing of the waste sulfurous gas into sulfuric acid, widely practiced at mining and smelting plants in Canada, is being introduced extremely slowly here.

As a result, it is very difficult to breathe in Norilsk, and for a radius of 200-250 km the sparse forest has almost completely died off and will require 150-200 years to renew itself. In the currents of the general circulation of the atmosphere the sulfurous gas reaches the Scandinavian countries, giving rise to serious complaints on their part. This, incidentally, has been worsened by the ecologically ignorant, purely parochial decision to build a very high chimney, of several hundreds of meters, for exhausting gases. This did not improve the situation in Norilsk significantly, and abroad the construction of "super-chimneys" was understood as a desire to send wastes to our neighbors.

The ecological imperative also dictates far lower threshold criteria for the concentration of industry than in regions in the middle latitudes. The northern environment does not tolerate the kind of gigantic territorial and production complexes of which we were recently so proud. One does not need to go far for examples—there are the Kola Peninsula, the north of Western Siberia, and Taymyr. The tendency toward decentralization of the economy is paving a road for itself all over the world, but in the North it is most appropriate and timely. However, the mania for size in the development of the northern territories continues to flourish. It is enough to point out the gigantic facilities of the natural gas and chemical plants in the north of Western Siberia and the Turukhanskiy Hydroelectric Station, with a reservoir 800-1,000 km in length.

The methods of evaluating and calculating the damage caused to the northern environment by economic activity do not correspond to today's realities at all. According to the figures of the managing departments here, which are based on immediate pragmatic advantage, the resources of the North as well as of all the local environment are worth little. For example, the damage from the destruction of a hectare of tundra, calculated only according to losses to the hunting and fur industry and to reindeer breeding activities, is evaluated at no more than 50-100 rubles [R] whereas, for example, destruction of a hectare of Kursk forest and steppe land costs R15,000-20,000.

More often than not the figures are clearly arbitrary. The value of all the renewable resources over the 21 million hectares of the Yamal Peninsula that have been to one or another degree destroyed in the development of the oil and gas producing territory is determined by planners at R10.9 billion. That is practically R500 for a hectare. At the same time the total damage to the environment of the

peninsula up to the year 2010 is calculated by the same people at R313 billion—only R15 per hectare! Meanwhile N. Vorontsov, chairman of the USSR Goskomprirada [State Environmental Protection Committee], writes in the newspaper SOVETSKAYA KULTURA that today alone, never mind up to the year 2010, 6 million hectares of reindeer pastures have been ruined in the north of Western Siberia at a cost of R60 billion. That is, a hectare of tundra is now valued at R1,000. No one knows the real price of the northern territories in regard to their role in the global equilibrium of the climate and their influence on the temperature and quality of the natural waters and air. One thing is certain: It is much higher than all the estimates cited above.

The ministries developing Yamal are not planning to spend more than five percent of the R40-50 billion of all capital investments on environmental measures. Worldwide experience shows something quite different: On the Alaskan oil fields and pipeline that figure was 20-25 percent.

It is long past time to change the existing approach to the evaluation of resources, which contributes to the loss of the northern environment. Evaluation of the damage should be conducted according to the cost of restoring the environment. And this is very costly, long-term, and labor-intensive. The biotechnics of the recultivation of tundra vegetation are still very poorly developed, and this means that we must develop the North twice as cautiously.

The environment's poor ability to reestablish itself in the North and especially in the Arctic demands a high ratio of protected territories: Preserves, national parks, etc. In Alaska, for instance, more than 30 percent of the territory is specially protected. In our North, such regions comprise only a few percent.

It must not be said that the need for a special ecological and economical approach to the development of the North has not been recognized. Moreover, it has even been decreed. Let us recall the quite satisfactory decree of the USSR Supreme Soviet Presidium of 26 November 1984 on improving environmental protection of the Far North. But it turned out to be completely ineffective, and it is simply unknown or ignored in economic activity. To a great degree this is because, in accordance with existing legislative practice in this country, the Supreme Soviet only determines the basic trends of the law, and the specific forms of its implementation are established by so-called "legally binding acts" which are worked out by the Union and republic councils of ministers, but primarily by ministries and departments. And, of course, the geological, oil, and gas ministries are not at all in a hurry to draw up regulations, for example, on strict limitations stipulated by law on the movement of off-road equipment across the tundra.

Has not the time come, if only in such important spheres as protection of the environment, to ensure that acts which are adopted by the USSR Supreme Soviet have

not only moral and legislative force but also final and judicial force? It is done that way in the United States, where environmental laws adopted by the Congress have a supplement—a list of concrete measures which are binding on departments, companies, and individual people.

Strategic questions of economic policy in the North demand a special approach. We need financial and economic protection of the northern territories and a very careful attitude toward self-financing, cost recovery, and regional economic accountability. We need to increase the share of deductions to the local budget from the profits of enterprises under Union jurisdiction and from the turnover tax. This tax is small at present, which reduces the opportunity for socioeconomic development of the territory and presents cause for accusations of the colonial nature of relations between the "center" and the "outlying areas." Indeed, up to 70-80 percent of the taxes from oil industry companies go into the treasury of the state of Alaska, while in Yakutiya only 30 percent to a maximum of 40 percent of the profits of mining enterprises go to the budget of the republic.

In any case, under the special natural and economic conditions of the North and even more of the Arctic, it is extremely dangerous to insist on stereotypes of economic reform that are appropriate to long-developed regions in the middle latitudes. A new economic policy in the North should be conducted with respect for the stage and degree of development of the territory, its geographic conditions, and the management structure of the sector. And that requires due legal formulation. Otherwise the resources and environment of the country's last ecological reserve will be lost over a matter of several years.

It is time to make up an ecological and geographic register of the northern territories and work out a regional policy on the basis of it. Regions with very difficult and demanding natural and economic conditions should be left "in reserve" until reliable engineering and technology appropriate to those conditions are developed. And alternatives should be sought. For example, a proposal to leave Yamal in peace for the time being and direct our efforts toward increasing extraction of natural gas in the Nadym-Pur-Tasovskiy region deserves attention.

The complex and very large problems of the northern peoples demands especial concern. The basic misfortunes of the indigenous population of the North are well known.

Unfortunately, ethnographic, sociological, and economic sciences have not offered a uniform answer to the question of the roads for development of the sparse peoples of the North. These peoples, of course, will choose their life's path themselves. But they need help. First and foremost they themselves and their territories need to be securely protected from the press of industrial development which, in essence, has become the basic cause of their misfortunes. Apparently we need to set off

certain regions that industry is forbidden to enter, or at least ensure that the activities of the ministries and departments are put under the full control of the local ethnic soviets.

In this respect as well, the experience of Alaska is again quite instructive. The Eskimos and Indians were paid enormous monetary compensation (billions of dollars during 1971-1990), and significant territories were allotted for their absolute control. The same practice is being carried out in the Canadian North as well. But simple monetary compensation, which our ministries are prepared to undertake and which at first may prove attractive to the local residents, does not resolve the problems in the social, ethnic-cultural, and demographic spheres. It is better to count on social and ecological protection of regions where the indigenous population lives.

Our opponents frighten us with the picture of Indian reservations, which propaganda has painted in gloomy colors that rarely correspond to reality. "Reserve" in English means a preserve, and the goal of a reservation is to limit not the rights of the people living on it but the rights of corporations aspiring to that land. Our North also needs autonomous territories with special rights for the local peoples. In accordance with the example of international practice we should strictly codify the exclusive rights of the indigenous residents to hunt and trap in these regions, because this is their sole means of existence. Mass unorganized hunting or, more accurately, poaching, should be halted there.

History shows that protection of the indigenous population from an alien culture or, more properly, wise limitation of its influence, should not be looked upon negatively.

It is necessary to take into account the significant difference in the levels of social development, which demands an extremely cautious "entry" by the indigenous peoples into modern civilization. Over the course of more than two centuries of Danish colonialism the Eskimos of Greenland were strictly isolated from the Danes and their work at the enterprises was specially monitored. As a result, the ethnicity of the Greenland Eskimos was preserved on the whole better than in Canada and Alaska, where such a policy did not exist for a long time. Moreover, in 1979 Greenland became the first autonomous northern state within the framework of the Kingdom of Denmark. Real priority of the Eskimos over Danes in all spheres of public life and even in some aspects of foreign policy was established there.

Establishment of ethnic and territorial autonomy in the North is a worldwide tendency, and it is not passing us by. Legislators should look ahead and attentively familiarize themselves with what our neighbors around the Arctic are doing. In general we send out many delegations, representing individual sectors of science and the economy or individual regions, for this sort of thing. But is it not time to think about a comprehensive exchange?

Comprehensive delegations of the USSR Council of Ministers State Commission for Arctic Matters on one side and, for example, an American Interdepartmental Agency for Policy on Arctic Research on the other or specialized parliamentary delegations could discuss key problems in research and development of the North.

If we do not fundamentally change the way we act in the North in the near future, we will simply lose that region by destroying its environment and leading the Northern peoples to complete degradation. Yes, salvation of the Arctic demands not only changes in policy but also substantial money. In this context the following thesis is especially apt: Today's expenditures are far smaller than the direct and indirect losses from the loss of the whole region. The Arctic may become a good model for a new ecological and economic approach to the development of territory.

But for that we need broad discussion in the commissions and committees of the USSR Supreme Soviet with the goal of preparing a package of parliamentary and governmental solutions concerning the North and the Arctic that touch first and foremost upon ethnic, socio-economic, and ecological aspects.

Analysis Finds Heavy Ufa River Dioxin Contamination

*LD1002104391 Moscow Domestic Service in Russian
0800 GMT 10 Feb 91*

[Text] The results of the water analysis of the Ufa River have been published in Ufa. The research was carried out by specialists from the Ministry of Health. It has been established that the amount of dioxin in the river is 147,000 times higher than the limit. The main source of pollution is the Khimprom Association.

Protests Follow Smog in 'Windless' Siberian City of Bratsk

*PM1102162391 Moscow IZVESTIYA in Russian
9 Feb 91 Union Edition p 1*

[SIBINFORM report from TASS, POSTFACTUM, UPI, REUTER, SIBINFORM, and INTERFAX roundup: "Nothing To Breathe in Bratsk"]

[Text] Over the last week the people of Bratsk have experienced another environmental crisis. The reason for the emergency was the totally windless conditions whereby Bratsk was literally blanketed in atmospheric discharges from the lumber complex and the aluminum plant. These discharges covered the city with such a dense shroud that vehicles had to use headlights in broad daylight and Bratsk Airport had to be closed due to poor visibility. Several rallies were held in the city, at which demands were made for the enterprises' capacities to be reduced and compensation established for living in Bratsk, SIBINFORM reported.

Perm Chemical Plant To Acquire Air Monitoring System From Austrian Firm*LD1002131491 Moscow Domestic Service in Russian
1200 GMT 10 Feb 91*

[Text] Perm's Ordzhonikidze Chemical Plant has recently been the topic of discussions caused by the unhealthy ecological situation at this enterprise. It has a negative effect upon the air over the city and the first step has been taken to improve the situation. The factory has signed a contract with the Austrian firm Voest-Alpine for the development of a system to monitor the purity of the air.

Bank for Ecological Funding Formed in Tatarstan*91WN0219A Moscow PRAVDA in Russian 15 Jan 91
Second Edition p 3*

[Article by Yu. Balashov: "'Green' Rubles"]

[Text] The country's first Ecological Bank has been created in Tatarstan with charter capital totaling 24 million rubles. Besides "ecologically clean" organizations such as the republic's Committee for Protection of the Environment and Kazan University's ecological faculty, the founders of this new type of credit institution include, of all things, certain enterprises of Kazan known to be evil violators of nature protection laws. But the contradiction here is only an apparent one: The violators know that only by uniting their resources will they be able to make their way out of today's crisis. The Ecobank will provide money primarily to those who are ready to invest it into construction of nature protection facilities, and it will simultaneously have a fiscal impact upon violators, who will begin paying fines as of January of this year.

Council of Ministers Approves "Aral" Consortium*91WN0218A Moscow PRAVITELSTVENNYY
VESTNIK in Russian No 50, Dec 90 Insert p 8*

[Report of text: "Resolution No 1185 of the USSR Council of Ministers of 24 November 1990: On the Formation of the 'Aral' Union-Republic Consortium"; Moscow, the Kremlin]

[Text] To improve the ecological and sanitary-epidemiological situation and living conditions of the populace in the Aral Sea area, to restore favorable conditions for the natural environment in the Aral Sea basin, and to make effective use of the financial resources and material-technical resources allocated for these purposes, the USSR Council of Ministers resolves:

1. To approve the proposal of the Uzbek SSR Council of Ministers, the Kazakh SSR Council of Ministers, the Tajik SSR Council of Ministers, the Turkmen SSR Council of Ministers, the Karakalpak ASSR Council of Ministers, the "Vodstroy" State Concern for Water Resources Construction, and the Khorezm, Kzyl-Orda, and Tashauz Oblast Ispolkoms concerning the formation

of a union-republic consortium "Aral" (the "Aral" Consortium), entrusting to it the functions of a single client for the implementation of the range of measures to improve the ecological and sanitary-epidemiological situation and living conditions of the population in the Aral Sea basin.

2. That beginning in 1991, USSR Gosplan, USSR Gosnab, the USSR Ministry of Finances, the Uzbek SSR Council of Ministers, the Kazakh SSR Council of Ministers, the Kirghiz SSR Council of Ministers, the Tajik SSR Council of Ministers, and the Turkmen SSR Council of Ministers provide in drafts of state plans and budgets of the Union of SSR's and the corresponding union republics the allocation by a separate line item to the "Aral" Consortium limits of capital investment, financial and material-technical resources.

After confirmation of the state plans and budgets of the Union of SSR's and the union republics, the "Aral" Consortium distributes the volumes of the capital investment, material-technical and financial resources allocated to it among the enterprises and contracted organizations, including the managements of enterprises being built.

3. To concur that the "Aral" Consortium is a legal entity, has its own accounts, is financed as a union-republic organizational structure from the resources of the Unions of SSR's, republic, and local budgets, uniting on a voluntary basis enterprises, associations, and organizations while preserving its departmental affiliation and economic independence, and implements its activity on the basis of the effective legislation of the USSR and the union republics, the charter, and other founding documents of the consortium;

the "Aral" Consortium develops, in conjunction with the organs of state administration of the Union of SSR's, Uzbek SSR, Kazakh SSR, Kirghiz SSR, Tajik SSR, and Turkmen SSR long-term and annual plans to realize a range of measures in the Aral Sea basin, and presents them in the established procedure for inclusion in the drafts of the appropriate state plans;

the "Aral" Consortium participates in the development of union-republic programs for improving the ecological situation and the population's living conditions in the Aral Sea area, and bears responsibility for its realization;

the managements of enterprises being built and other enterprises and organizations active in the basin may be included in the "Aral" Consortium with the consent of labor collectives;

the highest administrative organ of the "Aral" Consortium is the council, whose members are confirmed by the union republic Councils of Ministers, the Karakalpak ASSR Council of Ministers, the "Vodstroy" State Concern for Water Resources Construction, and oblsolkoms, the founders of the consortium. The number of representatives from each founder is determined by the

charter. The expenses associated with fulfilling the obligations of the consortium council members are born by its founders;

a representative of one of the republic-founders of the consortium is elected chairman of the "Aral" Consortium council on a rotating basis,

the consortium council elects a board as the executive organ which organizes the consortium's activity and represents the interest of the consortium's founders, as well as the associations, enterprises, and organizations comprising it, in relations with ministries, departments, institutions, and organizations. The activity of the council and the board of the consortium are regulated by its charter;

the "Aral" Consortium council determines the structure and staffing of the board apparatus, expenses for its maintenance, and labor compensation conditions for its staffers; the board and its apparatus are maintained at the expense of resources stipulated in the combined estimate accounts for the construction of facilities, earmarked by the managements of enterprises and other organizations being built, the financing of projects being executed, and from union, republic, and local budgets;

the chairman of the "Aral" Consortium board is elected according to the procedure stipulated by the charter and is confirmed by the USSR Council of Ministers State Commission for Emergencies.

4. In accordance with the proposal of the "Aral" Consortium founders, to entrust to the USSR Council of Ministers State Commission for Emergencies coordination and control over the consortium's work.

5. That the "Aral" Consortium in one month's time develop and in in coordination with the USSR Council of Ministers State Commission for Emergencies confirm the charter of the consortium.

6. That the "Vodstroy" State Concern for Water Resources Construction, in coordination with the executive committees of the local soviets of people's deputies, grant the "Aral" Consortium the necessary premises to accommodate the consortium board and its apparatus. The consortium representatives are located in the cities of Kzyl-Orda, Urgench, Nukus, and Tashauz.

[signed] N. Ryzhkov, Chairman,
USSR Council of Ministers;
and M. Shkabardnya,
Administrator of Affairs,

USSR Council of Ministers

Environmental Zalygin Blasts 'Aral' Consortium Goals

PM1302114591 Moscow IZVESTIYA in Russian
11 Feb 91 Union Edition p 3

[Ye. Manucharova report under the "Press Conferences" rubric: "Writer Zalygin Accuses..."]

[Text] "Environmental Disasters: Facts, Causes, Consequences." That was the subject of a press conference held at the Foreign Ministry Press Center 8 February. It was chaired by USSR People's Deputy S. Zalygin, chairman of the "Ecology and the World" Association Board and chief editor of the journal NOVYY MIR, and V. Petrovskiy, USSR deputy foreign minister, together with a group of academics from the "Ecology and the World" Association.

This association was set up by the academics and specialists who carried out a comprehensive independent review of the plans to divert northern rivers to the south and Siberian rivers to Central Asia and Kazakhstan. This material provided the scientific basis for the CPSU Central Committee and USSR Council of Ministers resolution to end the diversion work.

The material prepared by the association for the press conference contains major accusations against the government and Deputy K.S. Salykov, chairman of the USSR Supreme Soviet Ecology Committee.

Ecological crimes and the danger they pose to society were also discussed by S. Zalygin. All the misfortunes of society and all social contradictions have a major and deleterious effect on nature. Nature, wounded and weakened, remains silent, but what will this silence cost us in the future? The problems of Chernobyl and the Aral Sea, now overshadowed by the Gulf problem, could create a quite new, really major, and ruinous environmental situation worldwide. Two centers—the Aral Sea and the Gulf—could merge into a single unprecedented and unforeseen disaster area.

Nonetheless, again and again there have been insane attacks on nature, and various plans continue to lay the basis for environmental disasters.

Over the past few years numerous large nature conservancy organizations have been set up—the State Committee for Environmental Protection and committees under Supreme Soviets at all levels—but to a considerable extent they are all staffed by yesterday's "users of nature" and the keepers of secret environmental information. They were set up to surmount the departmental system, but now they themselves have become components of that system.

Zalygin relies on specific facts in his accusations. On 28 and 29 November 1990, the USSR Supreme Soviet Committee on Ecological Questions examined the problem of the Aral Sea. In the quest for practical solutions, the sessions were addressed by dozens of specialists and people's deputies. It turned out that it was all in vain. Long before the session (back on 24 November 1990) the USSR Council of Ministers adopted a resolution on setting up the "Aral" Consortium, allocating to it the "functions of a single purchasing agent" with a view to implementing a "range of measures to improve the environmental and health situation and living conditions for the population in the Aral Sea area." Although he knew about the resolution,

Committee Chairman K.S. Salykov did not even inform his committee about it. Why not?

It turns out that he had repeatedly allowed the committee to dodge its moral and legal responsibility to identify those who are to blame for the Aral catastrophe. As a result, the culprits are still receiving more and more billions to "restore the Aral Sea." They are clearing up their own mess.

The former Ministry of Land Reclamation and Water Resources, reborn as the "Aral" Consortium, has again arrogated the monopoly right of "single purchasing agent" and is again serving the interests of the same people. Should we be encouraging crime?!

"These monopoly concerns and consortiums have been set up precisely in order to 'hang on to' as many billions as possible and to ensure that there is a reliable source to sustain the 2-million-strong staff of land reclamation and water resource workers (including 150,000 workers engaged in planning and developing the Aral Sea's so-called 'prospects'). Other environmentally critical regions have also suffered as a result of departmental monopolies and the activities of the same old ever-present cadres," Sergey Pavlovich Zalygin believes.

He introduced the academics who are members of the association at the press conference. They answered journalists' questions.

A SELSKAYA ZHIZN correspondent asked how justifiable it was to have invited foreign ecology experts to take part in the work.

In reply, Professor A. Mishchenko of Moscow State University, deputy chairman of the association board, said that the government turns to foreign scientists when Soviet scientists disagree with government projects. That is when more obliging consultants are sought. And they are found abroad.

During the press conference it became clear that a considerable amount of money (both in rubles and foreign currency) is being allocated for nature conservation purposes. But parliament is still not interested in how the money is spent. This was stated by A. Yablokov, corresponding member of the USSR Academy of Sciences and deputy chairman of the USSR Supreme Soviet Ecology Committee, in response to my question.

The materials submitted at the Foreign Ministry press conference will be sent to a scientific conference at the United Nations.

Central Asian Water Crisis, River Diversion Tied to Republic Sovereignty Issues

91WN0212A Moscow LITERATURNAYA GAZETA
in Russian No 2, 16 Jan 91 p 8

[Article by Iskander Khisamov: "Water as a Cause of Fire"]

[Text] *Is it possible to return to a discussion of the question of river diversion?*

It is as though two hydraulic dredgers are mirroring each other, working on both sides of a bend in the river. And they are doing the very same thing: They are deepening the bottom and sucking the water onto their own shore, as if spurning the opposite shore. This absurd picture could serve as a symbol of the developing struggle for water in Central Asia. You see, one dredger is in Uzbekistan, and the other is in Turkmenia.

Komsomol [All-Union Leninist Communist Youth League] detachments from Khorezm conduct bold night raids on the "foreign" side of rivers and canals, and on the sly they cut the drive belts of the dredgers set up there. However, their own peasants are also not blameless, and young Tashauz men watch them vigilantly. Disputes and fights among irrigation workers are becoming more frequent at rayon junctions. They are dividing the water.

Justifying its ancient name of Dzheykhun (Wild), the Amu Darya frequently cuts across republic borders. During the sanctioned friendship of peoples, this did not alarm anyone. Thus, the Karshi Main Canal, which serves southern Uzbekistan, began on the territory of Turkmenia. And the Karakum Canal has its source in Uzbekistan and exits into Turkmenia. And now appeals can be heard frequently at meetings of informals, writers' plenums, and scientist symposiums of both republics to close the "foreign" canal that is robbing "our" river.

Also not standing aside are colleagues from Kirghizia and Tajikistan, where the two great Central Asian rivers, Amu Darya and Syr Darya, have their sources. They are demanding payment from "lower neighbors" for water that flows there, which is causing outbursts of righteous indignation and promises of retaliation.

Tens of millions were expended on the creation of an integrated water distribution system in the basin. But it is not working, because the republics do not plan to set up hydraulic headwork projects in it.

The whole world grieves for the Aral. The government, scientists, and specialists are engaged in a search for water for the Aral, and the public is sounding the alarm. And, nonetheless, I will risk the assertion that the efforts that are directed at saving the sea will not lead to anything. By all accounts, the heavily populated region will reach a severe water crisis in no longer than five years. One does not even want to imagine to what political consequences this could lead, aside from all the rest.

The many years of newspaper and journal discussions on these questions developed a whole series of stereotypes. The first: The water in Central Asia is being used wastefully, by economizing many happy years can be lived. Second, the odious Minvodkhos [Ministry of Land Reclamation and Water Administration], which has now been converted to a concern, is to blame for everything.

It is to its advantage to carry out gigantic projects for developing new lands and diverting rivers. And the third: The Aral was destroyed by the socialist system of economic management and the rapacious use of natural resources.

It seems, Dostoyevskiy said, that if 70 percent of a book is true, then it is entirely a lie. That is the situation here. During the years after the revolution, the population of the region grew from 7 million to almost 40 million. And already now there are quite a few huge economic units with 25-40,000 persons in oases that have only 4-6,000 hectares of land requiring irrigation. In a word, unemployment in Central Asia is a direct result of a shortage of arable land, and it is the result of a lack of water.

As for drainage canals for saving moisture, there are not very many of them. Crop farming in Central Asia is probably the highest in the country. These figures were cited at a recent conference on the problems of the Aral in Bloomington, United States [at Indiana University]. In Uzbekistan, an average of 12-14,000 cubic meters of water is used on one hectare. In California, which is similar but less arid, 9-12,000 is used on the very same crops. To reduce water irrigation by 5-10 percent, it is necessary to spend enormous amounts of money.

The number of projects to save the Aral and the region is increasing. Some people propose engaging in large-scale pumping of water from under the ground. Others—to draw on all reservoirs. Incidentally, this means a full degradation of the rural economy of the kray and the collapse of hydropower. Crop irrigation, which now yields more than 90 percent of agricultural products, will remain only in river floodplains.

There are versions of the immediate substitution of cotton and rice by fodder and fruit. However, in our arid region, fodder requires no less irrigation. But their profit is much lower, which would lead to a new impoverishment of the peasants, more than half of whom are already living on the edge of poverty.

In any case, a large-scale reorganization of the rural economy, a change in the system of crops, and the reorientation of industry and science associated with this will take many years. But the water is coming to an end.

Here is an assessment by American Professor F.P. Miklin [as transliterated], who is far removed from our national and territorial passions and contradictions:

"The Soviet Union has run into a hopeless crisis of water resources in Central Asia. It is very doubtful, even with the most careful water-saving measures, that regional water resources will be adequate to satisfy future economic and social requirements and also preserve the Aral Sea. Thus, the Soviet Government, possibly, will be forced to return to the project of diverting part of the flow of the Siberian rivers in the 1990's not only for water management reasons, but also for political and social reasons."

The situation in the country is changing rapidly. Both Russia and the Central Asian republics have legislatively reinforced their sovereignty with respect to natural resources. Market relations are approaching. And while previously the problem was who will be able to persuade the center to adopt one or another decision, now decisions will have to be made independently.

There is probably no need to relate in detail the history of the rise and fall of the project to divert part of the flow of the Ob and the Irtysh into the Aral basin. One can understand the angry reaction of the people of Russia—the potential water donor for Central Asia—behind whose back important decisions were made. Especially since this project was associated in the mass conscience with European, really farfetched diversions.

"But now, when the Russians can be assured that no one will make arrangements for them, can this subject finally be discussed in a businesslike way?" asks Rim Giniyatulin, Uzbekistan Minister of Water Administration. And he cites reasons: A water catastrophe in Central Asia will have disastrous consequences for the economy of the whole country. Up to 90 percent of the cotton is exported to the other republics, including half to the RSFSR ((Russian Soviet Federated Socialist Republic)). A sharp drop in deliveries will paralyze the textile and light industries.

Second, the Central Asian region is a huge and very simple market for commodities from other republics. If as a result of a crisis this market gets smaller or is closed entirely, millions of workers throughout the Union will become unemployed.

Hundreds of thousands of tons of fruit, vegetables, grapes, and melons come from Central Asia to the all-Union table. With the elimination of the cotton plant monoculture this stream increases sharply. The rich natural climatic potential of the region is opened up and promises the whole country a sizable addition of food.

It can also be added that Uzbekistan itself and contiguous republics are suppliers of many kinds of strategic products, fuels, and nonferrous metals, including gold also. There is no need to shatter the air with invocations about internationalism and lasting friendship—a pragmatic calculation is necessary.

What is needed? There is talk about five to seven percent of the water of the Ob basin (so far there are no other versions). Of course, there can be no avoidance of consequences for the nature and the population of the northern rayons of Western Siberia, and there is no reason to be cunning here. But, then, a majority of the rivers in the world are used and expended for irrigation. The Mississippi, the Yangtze, the Nile, the Euphrates, and the Volga give their water to feed people. And no one gives a thought to refusing their use.

The example of the little Baltic area and episodes from the life of the Transcaucasus show how vulnerable we are, and how obstinate we are individually. This brings

to mind an interesting moment in the last session of the parliament of Uzbekistan. One of the leaders of the republic's Academy of Sciences talked about how the provision of water for Central Asia is an all-Union problem. And he was interrupted by a comment from President Islam Karimov:

"Hold on, you just talked about the need for the full sovereignty of the republic. And now you are appealing to the Union. And you yourself are proving that we can raise and resolve this question only in a federation structure..."

Yes, water is a decisive argument for Central Asia, and very important for the Union as a whole, in favor of preserving the federative system of the country. If this fact will not be assessed in the proper way, then water, and the shortage of it, will be the cause of a great fire.

Uzbek Plan for Saving Aral Sea Criticized

91WN0199B Tashkent PRAVDA VOSTOKA in Russian
25 Nov 90 p 2

[Article by Uzbekgidrogeologiya Production Association administrators: R. Niyazov, general director, V. Volkov, chief geologist, and V. Krasnikov, chief engineer: "Expert Assessment": "You Cannot Fool Nature"]

[Text] The authors of a plan to solve the Aral problem (published in PRAVDA VOSTOKA on 13 March) one-sidedly claim that the main reason for the disappearance of the Aral Sea is the effect of geological factors which have changed the flow of the Amu Darya as a result of the rise or fall of certain sections of the Aral region. This fails to take into account the fact that these processes are constant in nature and that their rate and direction have not undergone any significant changes over the past several million years. This is confirmed by numerous data resulting from highly accurate survey work conducted by the Main Administration for Geodesy and Cartography between 1928 and 1978 and by analysis of the relief structure and local observations.

Indeed, elevated areas parallel to the stream flows are "growing" at a rate of up to two or three millimeters per year (six to nine centimeters every 30 years), which is consistently equal to the rate of erosion, thus maintaining a natural balance between the different natural processes. As long as a guaranteed water supply is maintained in the Amu Darya and the Syr Darya tectonic movement cannot be the cause of a catastrophic drying up of the Aral Sea. It is not tectonic movement but actually technogenic effects which are the main factor in changes in mineral content and pollution in ground water, a rise in ground water level and, as a result of this, flooding and swamp formation; this has been confirmed by many years of observations by nine specialized water gauging stations maintained by Uzbekgidrogeologiya Production Association [PO] and encompassing the entire territory of Uzbekistan in their research.

Calculations done by the Central Asian Hydrometeorological Scientific Research Institute and Central Asian Irrigation Scientific Research Institute imeni V. D. Zhurin indicate that the drop in the level of the Aral Sea is due primarily to marked changes in its water supply. Until the early 1960's its surface level averaged 53.3 meters above sea level, the area it covered was 67,600 square kilometers and the volume of water it contained reached as high as 1,090 cubic kilometers. Evaporation from the water surface was compensated for by the combined flow of the Amu Darya and the Syr Darya, with 56.0 and 11 cubic kilometers of annual flow, respectively. It was this relationship which ensured stability in the sea's water level.

However, in the subsequent period there began a sharp increase in the area under irrigation and overall water consumption. One after the other the Karakum, Amu-Bukhara and the Karshi Canals were built, diverting almost one-half of the Amu Darya's annual flow. The building of reservoirs holding another five cubic kilometers increased losses due to evaporation. Total flow into the Aral Sea in 1968 was 36.3 cubic kilometers. In 1969 nature decided to compensate for the Aral Sea's losses and unexpectedly gave it 80.6 cubic kilometers all at once despite, it seemed, all of our laws, which it had obviously studied... and despite incessant tectonic movement! This was followed by a lengthy period of drought (1970-80) as a result of which the Aral Sea experienced a shortfall of approximately 120 cubic kilometers of inflow. Finally, in 1975 the Syr Darya virtually ceased to flow into the sea. The Amu Darya held out until 1985, carrying an average of 10 cubic kilometers of water into the Aral Sea each year. In 1985 not a single cubic kilometer of water entered the sea from either river: it all went to irrigate cultivated fields.

Thus, the main reason for the disappearance of the sea is the excessively high and not always justified anthropogenic burden on its basin, as a result of which surface flow into the sea has ceased and allowed evaporation to reduce its surface level by one meter a year.

The authors of a study done by the Priroda [Nature] State Center are simply ignoring this fact and are attempting to pin all the blame for the disappearance of the Aral Sea on geological processes.

Unfortunately, even today neither science nor the production sector has taken a position on the main question relative to the Aral Sea: "Who or what should be saved?" Shall we carry out the requirements of the most emotional and least knowledgeable segment of our society and use any means possible to restore the sea to its former boundaries, or shall we utilize the existing bodies of water at the mouths of the rivers to create artificially regulated bodies of water intended to reduce the impact of salt concentrations and improve the region's economic and ecological situation?

Is it possible to restore the Aral Sea to its former boundaries? In order to do that it would be necessary to

secure a one-time flow of approximately 700 cubic kilometers and then ensure an annual supply of 60-70 cubic kilometers to cover evaporation; at the present time that is unrealistic. That would require that the entire flow of the Amu Darya and Syr Darya for a period of many years be channeled into the sea basin and that all the inhabitants and farmland of the Central Asian republics intentionally be deprived of water for drinking and irrigation. Where else could such a huge amount of water be found?

The authors of this plan have proposed using underground sources, thereby demonstrating unjustified optimism. At first glance the available volume of underground water with mineral contents of less than five grams per liter, according to our calculations, are 2,700 cubic kilometers, and there are also up to 12,000 cubic kilometers of underground water with mineral concentrations above five grams per liter. So it seems simple—just take this water! Yet these figures were arrived at based on a large number of assumptions and conditions. Practical realization of a plan to utilize a large volume of underground water is a rather complicated and expensive undertaking. Why?

In hydrogeological terms this region has ground water which lies in the first water-bearing strata beneath the surface and in interstrata layers founds at great depths underneath impermeable strata. Each type of source differs in terms of its available store of water. The high-volume reserves, or as they are called in the article "ancient" reserves, are a body of gravitational water filling pores and cracks in the rock. This water is an integral part of the deposit structures, is not very mobile and as a rule is difficult to extract. Replenishable reserves or natural reserves are sources of water which are in constant movement, flowing from their source to the area in which they eventually reside.

These reserves are formed through filtration of precipitation and filtration losses from rivers and irrigation and total about 58 cubic kilometers a year in the region. It has been estimated that no more than 17 cubic kilometers a year could be removed from these reserves without causing harm to the environment or the economy.

Underground interstrata water with mineral contents above five grams per liter is mineral water or thermal water and is used for therapeutic purposes; in a number of cases this water contain industrially-recoverable concentrations of valuable components. The reserves of this water are truly huge, but the replenishable portion, i.e. that portion which may be diverted each year without causing serious disruption of the natural balance, is just 3.6 cubic kilometers. Thus, the projected usable reserves which could be diverted without causing a serious change in the present water use regime and ecological system are approximately 20 cubic kilometers a year, no more.

Presently there are approximately 31,200 working wells in Uzbekistan, pumping over 10 cubic kilometers of

underground water each year. Of these, 15,000 wells supply drinking water, yielding a total volume of 3.6 cubic kilometers; irrigation accounts for approximately 7,000 wells using over three cubic kilometers, and 4,500 wells produce 2.7 cubic kilometers of water for vertical drainage. The remaining wells pump water for industrial uses.

The authors of the article: "Water for the Aral Sea" propose pumping 10 times as much every year. But this could result, firstly, in disruption of the present balance in nature and disappearance of fresh water reserves in all the major sources. Secondly, pumping saline water out of deep reservoirs and dumping it into the natural water flow would thoroughly pollute river water and, as a result, would eliminate water supply sources on the middle and lower Amu Darya and would alter if not destroy fish and animal life and disrupt the irrigation water structure.

Nor will the plan for technical and economic justification of the proposals outlined by the authors withstand criticism. Suffice it to say that in order to obtain a mere 30-35 cubic kilometers of water over 200,000 wells costing over R14 billion [rubles] would be required. In order to obtain 100 cubic kilometers of water the cost of pumping facilities and infrastructure would exceed R100 billion, not R3-5 billion, as the plan's authors estimate. Of course, one could perform simple arithmetic calculations and demonstrate that drilling 600,000 wells would require millions of tons of steel pipe, hundreds of thousands of submersible pumps, construction of another Bratsk Hydroelectric Power Station to supply energy to industrial production facilities, expropriation of hundreds of thousands of hectares of land and an unimaginable amount of earth-moving and construction work which is beyond the capability not only of our republic's economic complex, but even that of the entire Union.

However, the main error in the plan lies elsewhere: by saving the Aral Sea in this manner we would unwittingly be creating the preconditions for the Aral syndrome to be repeated in other regions of our republic. Nature does not forgive mistakes and exacts terrible vengeance for violation of its laws.

It would be unrealistic to attempt to save the Aral Sea with underground water. Furthermore, it should be borne in mind that the main, top-priority task in our region is to supply the population with potable drinking water and to create the necessary social and living conditions for human existence.

Uzbekgeologiya has long been making intensive, ambitious efforts toward this goal. Uzbekgidrogeologiya PO has doubled its funding of the Aral Region Geological and Geodesic Expedition. Plans to identify and study underground sources of fresh water have been drawn up and are being carried out. We are now completing our reassessment of previously discovered reserves using methods of artificial replenishment, making it possible to maintain underground water quality at the level

required by the USSR State Committee for Standards. With the aid of hydrogeologists an increase of almost 30 percent has been brought about in the productivity of the Turtkul, Kegeyli, and Akmangit water diversion projects, and the Alikul and Chimbay projects are next in line.

Still, we must admit that there are no guaranteed underground sources of fresh water which will fully meet the demands of population along the lower reaches of the Amu Darya. The planned work of drilling wells with distillation equipment is underway throughout the entire autonomous republic. A large part of this work is being done by Aralvodstroy and Aralselkhozvodoprodstroy.

Additional water resources must of course be sought, but sought in those places where they actually exist. In view of this the issue of diverting the excess flow of Siberian rivers must once again be put on the USSR Supreme Soviet's agenda.

Residents Ask RSFSR To Investigate Defense Activity Safety in Maritime Kray

91WN0219D Moscow OGONEK in Russian No 52, 22-29 Dec 90 p 4

[Letter to the Editor]

[Text] We are residents of the settlement of Shkotovo-22 (Dunay Settlement), Maritime Kray.

On the night of 30-31 August of this year there was a fire at naval artillery dumps located not far from the settlement, as a result of which ammunition stored there began to explode. The bursts scattered artillery projectiles over the entire district, and they even fell in the settlement. There were cases where dwellings, garages, a schoolyard, children's day care centers and other buildings were hit. The settlement's inhabitants hid all night in a bomb shelter, in basements, behind the walls of houses, and behind bayshore cliffs. Luckily for us, most of the projectiles did not explode when they fell.

The same sort of fire occurred at the same dumps in 1978. The command of the Pacific Fleet did not reach the right conclusions and did not implement the right measures, as a result of which a second incident occurred, presenting a danger to the inhabitants of territory on which naval facilities are located.

In 1985 the nuclear reactor of a submarine standing in our bay for repairs exploded. As the newspaper ARGUMENTY I FAKTY recently reported, the Gulf of Amur was recently contaminated. You could imagine, then, what happened in our locale. All of these incidents are still being concealed from the public. We are certain that every effort is being taken to cover up this last incident as well.

There are still many dumps containing ammunition of various types, radioactive waste and rocket fuel burial

grounds and other naval facilities just around our settlement alone. Given the present situation in the country and in the navy, accidents of even greater horror can be anticipated. The inhabitants of the territory are hostages of the navy. All of this is happening because the land on which we live belongs for practical purposes to the USSR Ministry of Defense; the local soviets have no real power here, and public organs are not maintaining any sort of surveillance over naval activities.

We would very much like the RSFSR Supreme Soviet to send a commission here to investigate the accidents and the navy's activities in Maritime Kray in general. And also to examine the question as to returning all land on which the USSR Ministry of Defense is conducting its business to its real owner—the local soviets—together with all ensuing rights.

Inhabitants of the settlement of Shkotovo-22
(Dunay Settlement),
116 signatures

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Turkmen SSR Supreme Soviet Examines State of Republic's Environment

91WN0192A Ashkhabad TURKMENSKAYA ISKRA in Russian 20 Nov 90 pp 1-2

[Unsigned article: "On the Agenda—Questions of Ecology: Report on the Second Day of Work by an Extraordinary Session of the Turkmen SSR Supreme Soviet"]

[Text] The ecological state of the Aral Sea area of the Turkmen SSR and measures to improve it were the last item on the agenda of an extraordinary session of the republic's Supreme Soviet. But in terms of its significance for Turkmenistan this is one of the most urgent and important issues. For this reason the entire second working day of the session was devoted to a discussion of this issue. In accordance with a decision by the deputies, it was arranged to hold the session in Tashauz.

P. Tanrykuliyeu, chairman of the TuSSR Supreme Soviet Committee on Ecology and Public Health, presented a report at the session. In the report he noted that in terms of ecological, economic and public-health indicators the situation in the Tashauz, Chardzhou and Mary Oblasts cannot be called anything other than catastrophic. The main reason for this lies in the destruction of man's environment for habitation by unacceptable pollution of the drinking water, the deterioration of soil conditions and the low level of social benefits.

The population has virtually no high-quality drinking water. The natural waters are constantly being polluted by salts, poisonous chemicals, and other various toxic and biologically-active substances. The rates for infant mortality and infectious diseases are growing; the number of children born with various developmental defects is increasing every year.

These oblasts comprise the region with the country's highest infant and maternal mortality rates; they are characterized by frequent outbreaks of infectious gastrointestinal diseases and unsatisfactory public-health conditions in built-up areas.

It is a question of possible survival for nearly 2,307,000 people, almost two-thirds of the population of the Turkmen SSR.

Today the level of infant mortality for these oblasts exceeds the average Union-wide indicator by 2.5-3-fold.

In Tashauz Oblast the socio-economic damage from child mortality alone amounts to about 120 million rubles annually, in Chardzhou Oblast it amounts to R86 million and in Mary Oblast it is R117.9 million. There is now a danger that the population of these oblasts may lose its medico-genetic stability.

For a long time priority in the oblast was given to developing massive amounts of new irrigated lands without considering the consequences, which are present today.

Virtually no effort was made to find methods for using water economically in agriculture and industrial production. The quality of the water which is being used for land irrigation has deteriorated four-five-fold in the last five years.

The report goes on to say that the development of the agro-industrial complex has been accompanied by the broad application of mineral fertilizers and toxic chemicals, as well as by serious and scientifically-unsubstantiated violations of the technology for their utilization; this has led to further significant pollution of the water, soil and agricultural products.

The situation has been made worse by the failure of the ministries, agencies and oblispolkoms to fulfill the decision by the Presidium of the Turkmen SSR Council of Ministers on the implementation of a set of measures to shift facilities which pollute water and land resources away from the protected zones of the Amu Darya [River], the Karakum Canal and other water sources.

The last 30 years were a period of wasteful, barbaric plunder of the national wealth represented by the waters of the Amu Darya and Syr Darya [Rivers].

This situation is leading to an irreversible loss of the invaluable wealth of living nature—the gene fund of endemic fauna. The death of the tugai (vegetation-covered bottomland), of reedy undergrowth and ponds in the deltas has brought with it an impoverishment of the animal world: previously there were 173 species of valuable animals, but at present there are only 33 in all.

The Ichthyological Commission of the USSR Ministry of the Fish Industry has concluded that it is dangerous to use the fish which remain in Sarykamish Lake for food.

Reedy undergrowth covering an area of 800,000 hectares in Tashauz Oblast alone has died. Relic tugai reeds along the river bed are on the brink of extinction.

The CPSU Central Committee and the USSR Council of Ministers attribute great sociopolitical and economic significance to the fundamental improvement of the ecological situation, the state of the population's health, as well as favorable working and living conditions for the people residing in the regions adjacent to the Aral Sea; for this reason they adopted a resolution in 1988: "Concerning Measures To Fundamentally Improve the Ecological and Public-Health Situation in the Aral Sea Region, To Increase the Effectiveness of Resource Utilization and To Strengthen the Protection of Water and Land Resources in Its Basin."

However, the amount of money appropriated for the construction of water management facilities, that is, for water-supply, sewage and treatment facilities in Tashauz Oblast was 30-fold less than in the neighboring oblasts of the Uzbek SSR and the Kazakh SSR, and no funds at all were provided for the Chardzhou and Mary oblasts.

In this regard it was the leaders of these oblasts and the republic's Council of Ministers above all who were guilty in the fullest measure; they failed to obtain timely increases in capital investment and material resources.

A majority of the rural population in these oblasts uses water from wells, most of which do not meet the most basic public-health norms. Another several hundred thousand rural residents use water from irrigation ditches and canals because their villages do not even have wells. As a result of this the rate of illness from acute infections is not falling. In the last 10 years 26 outbreaks of intestinal infections have been recorded in Tashauz Oblast alone. Suffice it to say that during an outbreak of viral hepatitis in 1984-1985, more than 16,000 people came down with the disease.

An analysis of water quality shows that today there are no guarantees against repeated outbreaks of various diseases. Nor can one exclude the possibility of a particularly dangerous infection such as cholera.

No less persistent is the problem of providing the population of Tashauz, Chardzhou and Mary Oblasts with food supplies. A comparative analysis of the data on the per capita consumption of basic foodstuffs shows that these oblasts belong to a region with an extremely low consumption level for basic biologically-active foodstuffs.

Air pollution, especially in residential areas, is becoming a serious threat. Every year more than 115,000 tons of harmful substances are discharged into the atmosphere.

Today health care in the Tashauz Oblast is in a disastrous state. The physical facilities and equipment of its treatment and preventive-care institutions do not meet present-day requirements. Of these institutions, 95-97 percent are located in adapted quarters; only eight-17

percent have running water. Providing medical personnel for the region's population is also a serious issue.

Radical transformations in health care are possible only if there are changes in the principles and methods of financing it. The insignificant growth in health care financing which has been noticed in recent years does not meet the normative requirement.

Matters are no better here with regard to education, the development of sports and fitness programs or the provision of housing.

At the end of the report P. Tanrykulyev noted the unsatisfactory work of the Turkmen SSR Council of Ministers on the fulfillment of resolutions which have been adopted for the protection of the environment and the efficient utilization of the republic's natural resources. No draft of a long-range program for the protection of the environment and the efficient utilization of the natural resources of the Turkmen SSR has been drawn up yet.

The session continued with a report by O. Khodzhakov, chairman of the Tashauz Oblast Soviet of People's Deputies and first secretary of the party obkom.

He said that the residents of Tashauz were waiting with faith and hope for today's special session of the Turkmenistan Supreme Soviet. As long ago as May of this year the deputies of the oblast soviet adopted an appeal to the republic's government on the need to improve the region's natural environment. The disastrous situation in the Aral Sea zone was discussed at the 28th CPSU Congress, the 24th Congress of the Communist Party of Turkmenistan and at the USSR Congress of People's Deputies.

The ecological crisis is deepening with each day; this means that not only is the state of the land and the air threatened but also people's health.

One of the main causes of the ecological disaster, the speaker emphasized, was the regular poisoning of the land, the water and the air. In more than 100 places drainage wastes are discharged into the Amu Darya, the sludgy waters of which go to fertilize the fields. On average, these wastes amount to 10 billion cubic meters per year, every liter of which contains 12 grams of salts and harmful substances. Along with the irrigation water, every hectare receives about 3.5 tons of salts and wastes from toxic substances. As a result, some lands are going out of use; they are losing their fertility.

In an area which quite recently had hundreds of thousands of hectares of fertile lands, hardly one healthy hectare remains. In the last five years there has been significant growth in the amount of land with a medium-level of salinization. Naturally this has led to a reduction in the yields of food and fodder crops. The poor meliorative state, including the lack of drainage networks, further exacerbates the situation. At present for every hectare there are only 24 linear meters of drainage

networks instead of 53. Forty percent of the arable fields require fundamental improvement in their meliorative state. At present the level of ground water is significantly higher than the norm on 83 percent of the sown area. In a year an average of 4 billion cubic meters of water come to our oblast through inter-republic drainage networks. Moving through the Deryalyk and Ozernyy Canals, they swamp the arable lands and reduce the quality of drinking water. After emphasizing this problem in particular, the speaker noted that it is directly linked to the high rate of illness in the oblast's population, the reduction in people's life span; the ecological crisis, which is continuing to deepen, has reduced the population's living standard. The oblast's per capita income is two-fold lower than the average for the republic. There are 150 built-up places which have no electricity, and the schools are short 70,000 places. In villages only one out of 10 children goes to preschool. Ninety percent of health-care institutions have no running water or sewage system. Many of them are located in old buildings. There are not enough physicians. Only 30-60 percent of the population's demand for meat, milk, eggs and other basic foodstuffs is met.

In order to improve this difficult ecological situation, the Union-level, republic-level and local soviets and economic organizations are definitely at work, the speaker continued.

The speaker reported that in accordance with the 19 September 1988 resolution of the CPSU Central Committee and the USSR Council of Ministers: "Concerning Measures To Improve Fundamentally the Ecological and Public-Health Situation in the Aral Sea Region, To Increase the Effectiveness of Resource Utilization and To Strengthen the Protection of Water and Land Resources in Its Basin," the TuSSR Council of Ministers and the Tashauz Oblispolkom had approved a program to achieve these targets. Its fulfillment was discussed at an oblast session in August of this current year. As a result of the measures taken, certain conditions have been created in the last three years to improve the ecological situation. First of all, changes have taken place in land reclamation. The construction and renovation of canals has been speeded up. New agricultural maps have been compiled; they show the content of various salts in the soil. The renovation of the Deryalyk and Ozernyy Canals has been carried out. Control over the use of water resources has been increased, and economical methods for the utilization of water have been introduced. Efforts are being made to provide people with high-quality drinking water. Preparations are being made to supply 400 cubic meters per day of fresh ground water. The construction of water and sewage systems has been accelerated.

In agriculture the application of mineral fertilizers and toxic chemicals has been improved. The use of aviation for defoliation has been stopped, and eight types of toxic chemicals are no longer being used. We have started to use biological methods on a broad scale. At present there are 75 functioning biofactories and biolaboratories,

which are helping to protect three-quarters of the land under crops against harmful insects.

However, the program for ecological improvement is being carried out unsatisfactorily. Although the oblast is at the center of an ecological disaster, it is not receiving sufficient appropriations of financial and material resources, foodstuffs, medicines, medical equipment or other goods. One gets the impression that the Union and republic organs are allotting to Tashauz Oblast only those funds which are left over. And the oblast leaders must also share the blame. They are not working to solve the problems decisively and quickly. In three years Tashauz Oblast has been allotted R16 million from the Union budget for the Aral program. This is a miserly sum. The republic's Council of Ministers and its Gosplan have not been energetic enough in their efforts to resolve this problem.

The working people of the oblast received with great hope a resolution of the TuSSR Council of Ministers on the development of Tashauz Oblast. But this resolution, too, remained on paper. All this creates among the population distrust and pessimism. On behalf of all the residents of Tashauz Oblast O. Khodzhaev appealed to the people's deputies and the president of Turkmenistan to supervise the resolution of issues related to providing the oblast with material resources. The residents are also waiting for the establishment of an index factor, he emphasized. It is essential to stop—beginning in 1991—the discharge of drainage waters into the Amu Darya and the inter-republic canals. The same proposal should be made to the supreme soviets of the Tajik and Uzbek SSR's. If we do not do this, all our resources will be spent in vain, the speaker emphasized. He proposed that the resolution of this issue should be assigned to the republic's prime minister.

In the next two years it is essential to provide the people with clean drinking water. For this it is necessary to put into operation ahead of schedule the Tuyamuyun-Tashauz water-supply line and the Ashkhabad Drinking Water Plant; it is also necessary to assign the appropriate agencies to put into operation in the Oktyabrskiy and Kunya-Urgenchskiy Rayons 400 water-distillation installations. It is essential to develop the construction industry in the oblast, in particular, to create the Aral-vodstroy Association.

The speaker also proposed the following as measures to improve the ecological situation in Tashauz Oblast: introduce biological and other methods for the treatment of drainage waters, levy an ecology tax on plants and enterprises which poison the air and earmark the funds collected for environmental recovery. In order to implement environmental protection measures it is necessary, in his opinion, to be bolder in recruiting foreign firms. He reported on a plan to create in the oblast a scientific-practical center for the study of the natural phenomena which are taking place, and he emphasized the need to open a branch of "Aral" in Tashauz. Reducing taxes on the kolkhozes and sovkhoses in the disaster zone would

help to create additional financial resources for the development of the economy.

In conclusion the speaker expressed the hope that the Supreme Soviet, the people's deputies and the republic's president would support the demands of the oblast's residents and would fulfill their request. He thanked the session participants who had come to the oblast at what was a difficult time for it.

The people's deputies then began to discuss the reports.

The fate of Aral and the fate of the people living in the surrounding area are our shared pain and concern, said K. Ilyasov in his remarks. None of us can remain aloof; everyone must make whatever contribution he can to remedy the situation which has been created here and to resolve the problems of the Aral area. Today Aral is one of the main stories being covered by staff members of the republic's newspaper SOVET TURKMENISTANY. It regularly contains reports on what is happening in the ecological disaster zone and what kind of measures are being taken to improve the people's living conditions; it publishes the opinions of scientists and writers. The rate of illness among the Tashauz Oblast population, especially women and children, arouses particular concern. Of course, in two-three years it is impossible to change the situation in a fundamental way, but it is essential to do everything possible to protect people's life and health. After approving in general the resolution's provisions on the ecological state of the Aral territory in the republic, the deputy emphasized that one could not allow them to remain only on paper. The main point is to begin realizing them as soon as possible. An important step in this process would be, in his opinion, the establishment of a special fund from the public's means which would be used to resolve the region's problems.

Unfortunately, the measures which have been taken up to now to resolve the problems of the Aral area have not brought fundamental positive changes in the oblast, noted K. Masharipov in his remarks. One of the reasons for this is during the formulation of the government program: "Concerning Measures To Fundamentally Improve the Ecological and Public Health Situation in the Aral Sea Region, To Increase the Effectiveness of Resource Utilization and To Strengthen the Protection of Water and Land Resources in Its Basin," insufficient attention was given to the ecological situation in Tashauz Oblast. And it is the oblast leadership above all that is to blame because only an insignificant portion of the funds allotted for resolution of the Aral problem is being channeled into improving the ecological situation here. The deputy said it was distressing that the total illness rate of the Tashauz Oblast residents had increased sharply. The neighboring areas—the Kara-Kalpak ASSR and the Khorezm Oblast of Uzbekistan—have mobilized all their forces and resources to remedy the state of affairs in their regions. But in our republic the resources being allotted for these purposes are obviously inadequate. In order to improve the population's supply of high-quality drinking water, the speaker went on to say,

it is essential to set up the production of water-treatment devices. The oblast needs its own plant to bottle drinking water, like the one which is being built in Ashkhabad. Enterprises in the building industry need to be renovated and their capacities expanded.

Kh. Dzhumabayev directed the attention of the deputies to two aspects of the disastrous situation in the Aral area. First, the Aral Sea is drying up and, second, the waters of the Amu Darya are being polluted. The river and canals receive particularly barbaric treatment from economic organizations, as well as industrial and agricultural enterprises, which discharge untreated waste water into them. This makes an already difficult ecological situation even worse. Moreover, no one is being punished for this. The speaker called for an immediate halt to the discharge of drainage waters into the Amu Darya, and he proposed that every rayon center should have water-distillation equipment to provide people with pure drinking water. The appropriate decision has been made. However, it has not yet been fulfilled, and the oblast does not have a single distillation device.

V.V. Rashidov informed the session participants about the work of the governmental commission studying the ecological problem in Tashauz Oblast. The commission members stated that the situation in the Turkmen part of the Aral Sea area is no better than in the neighboring areas of Uzbekistan. Large amounts of money are needed to begin to correct the state of affairs. Next year the republic will be allotted R115 million from the Union budget for capital investments and R99 million for construction and installation work. And although these resources are not enough, nonetheless, it is necessary to try to use them effectively and appropriately. The question of allotting material-technical resources remains a difficult one. About 60 percent of the amount required has been received. All this delays the implementation of measures aimed at improving the situation. The speaker also demanded an immediate halt to the discharge of drainage waters in the Amu Darya.

The TuSSR people's deputies listened attentively to a presentation by A.P. Tsygankov, the deputy chairman of the USSR Council of Ministers Commission on Emergency Situations. They asked questions, argued and uttered reproaches for the commission's inadequate attention to the region's needs. A.P. Tsygankov, who agreed with many of the comments, said that the commission members, having studied in detail the state of affairs at the local level and the needs of the republic, would provide the necessary help. In particular, water-distillation equipment would be sent, and additional financial resources would be allotted for the renovation of collecting mains and material-technical resources. Water-distillation equipment will be provided first of all to supply drinking water to hospitals, daycare centers and schools. He noted that in order to fulfill the program which has been set out it is essential to strengthen the oblast's construction base and to invest more funds in the expansion of the construction industry's capacities.

A. Dzhumadurdyev, chairman of the Agrarian Committee of the TuSSR Supreme Soviet, stated that in our shared concern for the fate of the Aral area residents, we must recognize that what is being done is still extremely inadequate to eliminate the threat presented by the ecological disaster which has been unleashed on them. It is completely obvious that the republic itself is not capable of coping with this task. The help of the central organs is necessary; however, they are in no hurry to provide that assistance in full measure. For this reason the people's deputies and government of the republic must display more persistence and must use all the powers granted to them to finally make those people responsible for the Aral problem face it. The deputy made a number of recommendations which, in his opinion, would help in the struggle against the salinization of lands and soil erosion, and he focused attention on the consequences of using poor-quality drinking water, which is all that is available to a significant portion of the republic's population at present.

I.N. Denisov, the USSR minister of health, emphasized in his remarks that the Aral problem had gone beyond the framework of an economic or social problem; increasingly it is taking on a political cast because it is directly related to the protection of the population's health. I think that every one of those sitting in the hall, said the speaker, asks himself the question: how did it happen that the oblast which is number one in the republic in terms of raw-cotton production per capita ended up in such a sorry state, as reflected by the indicator for the protection of the population's health? What must all of us who are involved in this problem do to correct this situation? In the first place, we must understand that the resolution of the problem largely depends not on the work of medical personnel, but rather on those who are responsible for the social and economic situation in the region. I.N. Denisov described the aid which the USSR Ministry of Health is extending to protect the health of the republic's population. He has proposed looking for funds to raise the salaries of medical personnel living and working in Tashauz Oblast, and he has called for more funds to allot for the construction and repair of hospitals, polyclinics and midwifery-obstetric centers, and to provide them with modern medical equipment.

K. Melyayev, who spoke next, noted that a group of USSR people's deputies from Tashauz Oblast had appealed to the Supreme Soviet and the government of the country to provide the necessary aid to our region. The difficult situation in which its inhabitants find themselves can be judged by the Takhtinskiy Rayon alone. The collection and drainage network has needed renovation for a long time; this leads to ever greater salinization of soils. As a result, the efforts of rural workers are frequently in vain; the harvest dies, and this means that people's living standard drops as well. Medical examinations have revealed 50,000 people with various diseases.

Ch. Arazklychev emphasized how important the issue being discussed by the deputies was for the future of the oblast and for the entire republic. Can one really remain calm when women and children are falling ill and the harvest of agricultural crops is dying in the fields? With each year the number of cattle is declining. For this reason urgent and effective measures are needed to improve the meliorative state of the lands.

In his remarks Kh. Soyinov talked about the need to combine forces and to allot more money to solving the problems of the residents in the ecological disaster zone. He provided a critical evaluation of the work by the central organs and, in particular, by the government's Commission on Emergency Situations; he directed the attention of session participants I.N. Denisov and A.P. Tsygankov to the inadequate assistance provided by the Union government to the residents of the Aral area.

There have been many conversations about the problem of the Aral Sea, stated O. Ovezgeldyyev from the podium. However, real tangible changes are not taking place, and most of the blame for this lies with the country's government, which has been extremely slow in extending practical help to resolve the existing difficulties. The problem of the Aral area must become a top-priority task of urgent importance for the republic's government as well. The speaker proposed the adoption of a special appeal to the USSR president, to the chairman of the country's Council of Ministers and to the leaders of the Central Asian republics to extend aid to the population of Turkmenistan, a majority of whose territory is in an extremely precarious ecological state.

In his report O. Khodzhaberdyev, people's deputy of the republic, noted with alarm that today a significant portion of the residents in the Dargan-Atinskiy Rayon suffer from various illnesses; due to the worsening ecological situation infant mortality has increased, and children cannot develop properly in a physical or moral sense. He proposed recognizing the rayon as an ecological disaster zone and stipulating measures to grant the necessary aid.

The problems which the residents of Tashauz Oblast face also exist in the Farabskiy Rayon, said O.K. Tacheva. It is essential to increase the punishment for those who discharge untreated waste water into the Amu Darya, which leads to irreversible ecological consequences and diseases among the people.

B.A. Ishankuliyev expressed the hope that the current session would be the start of fundamental and effective work to improve the state of affairs which had developed in the oblast. It is necessary to do everything possible to save the health of the people, to revive the earth and air and to provide the residents with high-quality drinking water. He requested that Tashauz be allotted additional monetary and material-technical resources to carry out work on the construction of water and sewage systems in the city.

Professor A.S. Safayev, representative of the Coordination Council of the USSR Academy of Sciences, introduced a series of amendments and additions to the draft resolution on the state of the territories in the Aral area of the Turkmen SSR. He proposed that a VUZ [higher educational institution] be opened in Tashauz to train ecology specialists.

In summing up the results of the discussion, S.A. Niyazov, the president of the Turkmen SSR, noted that the problem of the ecological state of the republic's Aral Sea area requires the most concentrated attention. After all, the fate and health of hundreds of thousands of people, as well as the future of the Turkmen people, are related to it. And the decision to hold a special sitting of this extraordinary session of the Supreme Soviet here, in Tashauz, proves once more the concern and alarm of the republic's leaders for the ecological situation, and for the life and health of the people. This alarm and pain are shared by all the republic's residents, especially because the negative consequences of the ecological disaster which has befallen the Aral Sea area is felt to one degree or another in its various regions. S.A. Niyazov went on to say that certainly at some time soon the ecological state of Mary Oblast and the other oblasts and rayons of the republic should be discussed thoroughly and in this same detail. There is also no doubt that funds must be found to introduce in Tashauz Oblast an index factor which would trigger supplements in pensions, in social benefits for residents and in the earnings of workers, kolkhoz members and service employees.

To be fair, it should be said that the Union government and other interested central ministries and agencies are helping to resolve the problems of residents in the Aral area of the Turkmen SSR. But the help is obviously not enough. We shall request additional aid from the center.

The president of the republic emphasized that in resolving the problems of the Aral Sea area the oblast leadership and the people's deputies at all levels of power must show more persistence and initiative. It is essential to search for and utilize reserves to improve the meliorative state of the land, as well as to renovate existing collection-drainage systems and to build new ones; this will make it possible to increase the production of agricultural output, especially foodstuffs, and in the final analysis it will contribute to a rise in the people's living standard. It is essential to show concern for people's needs not only in words but also in concrete, practical deeds to improve their well-being.

Today, despite the difficulties, the sociopolitical situation in Tashauz Oblast is stable, and this contributes to a good labor climate. There is evidence of this in the fact that oblast's farmers significantly overfulfilled the quotas for the production of raw cotton. It is important to retain this climate and to do everything possible to improve the state of affairs. It is necessary to develop and strengthen mutual relations with neighboring oblasts in fraternal Uzbekistan. The disaster of Aral is our common disaster, and we can only overcome it together,

by joint efforts. We must not tolerate mutual slights or reproaches. Only in respect for one another and in the desire to help at a difficult time can there be any guarantee of the successful realization of all the measures which have been specified. There is much to be done in order to eliminate the existing problems and to improve the people's life.

With this the special sitting of the extraordinary session was concluded.

Turkmen Authorities Issue Plan of Action for Aral Sea Crisis

91WN0224B Ashkhabad TURKMENSKAYA ISKRA
in Russian 19 Dec 90 p 1

[Decree of the Turkmen SSR Supreme Soviet: "On the Ecological Situation of the Turkmen SSR Aral-Region Territories and Steps for Its Improvement"]

[Text] The destruction of the human environment caused by the drying-up of the Aral Sea, the intolerable pollution of the Amu Darya [River], the worsening of the soil and reclamation condition of the land, and the low level of social services have led to such a situation that, from the point of view of ecological and medical-hygienic conditions, the territories of Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast cannot be called anything but an ecological disaster zone.

The supply of drinking water for the population is well below the norm, while the bacteriological pollution of water sources is 10 times the norm. The supply of quality food for the population is inadequate. The ecological situation in the oblast is catastrophic and life-threatening. During the last 15 years the number of infectious diseases—first and foremost affecting children—has risen sharply. The incidence of viral hepatitis, tuberculosis, and various cancers has increased dramatically; infant mortality is high. The maternity mortality rate is three to four times higher than the all-Union average.

Recognizing the sociopolitical and national-economic importance of the fundamental improvement of the ecological situation and the health of the population, and the creation of favorable conditions for work, living, and the everyday environment of the people who live in Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast, the Turkmen SSR [Soviet Socialist Republic] Supreme Soviet decrees:

1. To designate the territories of Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast an ecological disaster zone, establishing in it a special regime for economic activities. To cease the further development in this zone of ecologically harmful production activities, first and foremost those that require excessive consumption of water; to limit production largely to those activities that are related to the service industry or are ecologically harmless.

2. To approve the Turkmen SSR Supreme Soviet's Appeal to USSR President Comrade M.S. Gorbachev on the subject of ecological disaster in Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast.

3. To acknowledge the advisability of establishing a 1.6 coefficient to the stipends and pensions of residents, and to the salaries of workers, kolkhoz [collective farm] members, and office employees in Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast. To appeal to the USSR Supreme Soviet and the USSR Council of Ministers to allocate the means necessary for this purpose from the all-Union budget.

4. For the Turkmen SSR government:

- to develop, before 1 March 1991, a program to fundamentally improve the ecological and health situation, increase protection of land and water resources in Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast, and improve the efficiency of land and water use on those territories;
- using one of the existing hydroeconomic trusts as a basis, to create in Tashauz Oblast a specialized unit of the "Vodstroy" State Concern on Hydroeconomic Construction, with its work financed by capital investment and supported by material and technical resources from the all-Union budget;
- to fundamentally improve, in 1991-1995, the conditions of human life, and ensure the fulfillment of the measures, approved by the Turkmen SSR Supreme Soviet, on improving the water, gas, and electricity supply of populated areas. To construct, in 1991-1992, a drinking water plant in the city of Tashauz. To bring up to condition the existing water supply facilities and piping network; to establish orderly accounting for water usage; to establish separate water usage quotas for industrial and residential use; to create special health protection zones around the water sources; and to prohibit continued use of existing water supply systems and water sources that do not meet health requirements and deliver substandard-quality water to the population;
- to accomplish measures directed at water and soil protection, including the construction and reconstruction of sewer networks and treatment plants in populated areas, as well as the construction and reconstruction of facilities for industrial waste treatment at industrial enterprises and agricultural entities;
- to develop and implement a comprehensive program of clean air protection, cleaner atmospheric environment of populated areas, reduction in the release of hazardous elements into the atmosphere—first of all, automobile exhausts—and to strengthen the material and technical base of the appropriate services;
- to take immediate measures to fulfill the program for the prevention of environmental pollution caused by pesticides and mineral fertilizers; to establish strict control over the measured use of weed and pest killers and chemical fertilizers in agriculture, and to bring order into accounting for such materials and their

- storage and transportation. To solve the problem of disposal—on the appropriate enterprise—of unused, as well as now prohibited, weed and pest killers;
- to boost work directed at the expansion of biological methods of combating agricultural pests and a sharp reduction in the use of chemical means of plant protection; to cease using aviation for pesticide applications as well as using drainage water with a high content of mineral fertilizer or pesticides to water the fields used for growing vegetables and grains;
 - to construct new enterprises mostly on the basis of ecologically clean, minimum-waste technologies; to permit construction project financing only after obtaining positive ecological expertise;
 - to work out in 1991 a program aimed at employment of the population not engaged currently in the national economy; for this purpose to plan for the development of light and local industry enterprises, including small and other enterprises;
 - to work out and implement measures aimed at the stimulation and increase in production of ecologically clean high-quality food products; to ensure the supply of main food categories to the population of Tashauz Oblast and Dargan-Atynskiy Rayon in Chardzhou Oblast at a norm not lower than the republic average;
 - to accomplish measures aimed at improving the health of the populace, including a ban on using school-age children and pregnant women in agricultural work in fields where weed and pest control chemicals have been used, the strengthening of a material and technical basis of health-care units, and providing qualified medical cadres, medical technology, and instruments, as well as improvement in the area state supervision of health conditions;
 - to make additional efforts to reduce infant and maternal mortality by perfecting the organization of medical help for children and mothers; to implement differentiated pay based on final result to medical personnel;
 - to implement, in 1991-1995, measures aimed at the further development of social and cultural life, increased volume of residential construction, child-care facilities, sanitariums, preventive care facilities, rest and recreation facilities, and enterprises engaged in providing service, cultural, and sports activities, and settlement improvements;
 - to charge the Turkmen SSR Ministry of Justice, the Turkmen SSR State Environmental Protection Committee, the Turkmen SSR Ministry of Health, and the Turkmen Hydrometeorological Institute to prepare and submit for confirmation by 1 January 1991 proposals on increased the liability of enterprises, organizations, official personae, and individual citizens for violating nature protection laws, including economic sanctions applied to official personae in order to recover the damage done to the natural environment, as well as increased liability of the above-mentioned entities for the willful concealment and distortion of information regarding accidents

with ecological consequences, the level of environmental pollution, and the status of the health of the population;

- to define the degrees of economic liability for pollution of the environment by collector and drainage waters, including the introduction of fees for the normal disposal of collector and drainage waters into water sources and water collectors, and fines for excessive disposal of such, and for transporting drainage waters through republic territory.

5. For the Turkmen SSR Academy of Sciences:

- together with the "Aral" Coordinating Center to resolve the issue of the creation of a branch of this center in Tashauz Oblast in 1991; in 1991-1992 to conduct scientific research work in order to develop scientifically based recommendations for improving the ecological situation in Tashauz Oblast and Dargan-Atynskiy Rayon in Chardzhou Oblast;
- to develop, together with the Turkmen SSR State Planning Committee, the Turkmen SSR State Committee for Labor and Social Problems, and the Turkmen SSR Ministry of Health, in 1991-1992, a concept for decreasing ecological tensions and improving the health of the population, paying special attention to the rational use of natural resources and the optimal placement of production forces in both agricultural and industrial production;
- to create a center for ecology, which will coordinate scientific research and experimental design work, impact assessment, the development of complex programs.

6. To recommend to the Turkmen SSR Trade Union Federation Council to increase, starting in 1991, the number of vouchers to the republic and central recreation facilities and sanitariums that are allocated to the workers of Aral zone, as well as allocate the necessary finances to pay additional allowances to low-income families.

7. To state that the CPSU Central Committee and USSR Council of Ministers Resolution No. 1110 of 13 September 1988 "On Measures Towards Fundamental Improvement of the Ecological and Sanitary Situation in the Aral Sea Area and Increased Effectiveness of Usage and Enhanced Protection of Water and Land Resources in Its Basin" does not take into account the interests of Turkmen SSR in improving the ecological situation in Tashauz Oblast, which is part of the Aral ecological disaster zone.

The USSR Council of Ministers State Commission on Emergencies (Comrade V.Kh. Doguzhiyev) does not devote sufficient attention in its practical activities to the resolution of problems related to the ecological and health situation in the Aral area of the Turkmen SSR.

The Turkmen SSR Supreme Soviet considers it necessary to target no less than 25 percent of financial and material resources allocated from the all-Union budget for the Aral area to the improvement of the ecological

situation in Tashauz Oblast and Dargan-Atinskiy Rayon in Chardzhou Oblast. An appropriate proposal to that effect is to be presented to the USSR Supreme Soviet and the USSR Council of Ministers.

8. The Turkmen SSR Supreme Soviet, in reinstating the Turkmen people's desire to maintain friendly ties and good-neighborly relations with the brotherly peoples of the Uzbek SSR and the Tajik SSR, appeals to the higher organs of state power of the brotherly republics to instruct appropriate executive and economic organs to jointly undertake immediate measures to stop the discharge of untreated sewage and collector and drainage waters into the Amu Darya. The Amu Darya—a symbol of friendship and well-being of the peoples who populate its shores—should be as clean and clear as the meaning of these notions.

9. To charge the Turkmen SSR Supreme Soviet Committee on Ecology and Protection of People's Health and other Turkmen SSR Supreme Soviet committees with control over the implementation of this resolution.

[Signed] S. Muradov,
chairman of the Turkmen SSR Supreme Soviet,
Tashauz City, 17 November 1990.

Aral Sea Crisis Solution Proposed by Kazakh Economist

91WN0199A Alma-Ata KAZAKHSTANSKAYA
PRAVDA in Russian 20 Nov 90 p 4

[Article by Zh. Abdirrov, senior scientific associate of the KaSSR Academy of Sciences Economics Institute and candidate of economic sciences: "Water for the Aral Sea"]

[Text] *In order to restore the Aral Sea, the watersheds surrounding it and the Amu Darya and Syr Darya [Rivers] it is essential that we take a completely new approach and make innovative decisions dictated by the extreme complexity and difficulty of this problem. The problem can only be resolved if approached in a comprehensive manner. The objective source of a solution to this problem lies in natural and socioeconomic factors. Here a real possibility of a way out of this ecological crisis may be found.*

Given that, the goal of my plan is to develop and carry out a series of measures the revitalization, radical water conservation and renewal in the Aral Sea, adjoining areas and the Amu Darya and Syr Darya as a unified natural whole based on preservation of the existing aquatic system, formation on various tiers (levels) on two desiccated sea floors, introduction of an effective water conservation system of agricultural irrigation, and creation of a zone for nature preserves, industrial processing of minerals and interrepublic tourist facilities.

The end result of radical water conservation reconstruction will be restoration of the sea to its natural water level with a much smaller demand for water resources by

means of maintaining the presently existing Western Great Sea at a level of 37-38 meters, creation of two seas at higher levels (tiers) (an Eastern Great Sea at levels of 42-53 meters and a Northern Little Sea at levels of 43-53 meters) in the basin of the dry sea floor, with a regulated depth of 7-10 meters, to be connected between themselves and with the Western Great Sea by modern water channels with an automated system to regulate water flow by the year of during a certain period of the year (season).

The waters of the Amu Darya and the Syr Darya, which flow through five union republics, together with the glaciers which feed them and the Aral Sea itself comprise a single naturally-created "rectangular" natural system (the mountains - the Amu Darya - the Syr Darya - the sea). The artificial or, more precisely, violent disruption of this system is tantamount to a crime, since it is causing catastrophic disruption of the environment and the viability of the peoples living in this region and other regions.

Tajikistan and Kirghizia should not be considered the sole proprietors of the Amu Darya and Syr Darya because the rivers have their source there, nor should Turkmenistan and Uzbekistan, through whose territory they carry their water to the sea. Just as no one people or one country (or republic) can lay claim to the sun, the moon, the universe or the ocean, no one people or one country (or republic) has a right to claim as its exclusive property any river which flows through many countries (republics) and regions.

In the restoration and continuous renewal of the Aral Basin an exceptionally important role will be played by the establishment of an interrepublic (interstate) Cotton Cost-Accounting Association based on principles of cooperation and integration; it will be comprised on a voluntary basis of all raw cotton producers, processing enterprises, the textile industry and trade enterprises regardless of their location; all will have the right to redistribute and utilize the finished product (fabrics, clothing, etc.) and the pure profit in proportion to the contribution made by each of them to the end results of their joint efforts along the technological chain, including the needs of the Aral Sea and its basin in the financial and other means allocated for annual restoration and repair of individual sectors.

Implementation of radical water conservation reconstruction of the Aral Sea and its basins is based on calculation of the total water resource shortfall in this expansive arid zone and study and analysis of the bathymetric condition of the sea itself, which is comprised of two seas: the Central Great Sea and the Northern Little Sea.

The larger sea, which occupies almost 90 percent of the Aral Sea's total area, is divided in terms of depth into four sections: a narrow strip (along the western shore) which comprises four percent of the Aral Sea and has a depth over 30 meters; the western central portion, the

largest area, covering 33.6 percent of the sea to a depth of 20-30 meters; the eastern central portion, which surrounds the western central portion of the Great Sea and covers 31.5 percent of the Aral Sea to a depth of 10-20 meters; and the southern and eastern shore areas of the Great Sea, covering 20.9 percent to depths up to 10 meters.

At the present time, of these provisional divisions of the Great Sea the southern and eastern shore area has dried up completely, along with a portion of the eastern central basin, for a lost volume of approximately 24.4 cubic kilometers, or approximately 42.1 percent of total volume. This is the area which should be separated from the present Western Great Sea and used to form a relatively independent Great Sea. As a result, two seas will be formed in the former basin of the Central Great Sea: the Western Great Sea and the Eastern Great Sea.

The Northern Little Sea, which occupies at least 10 percent of the Aral Sea's total area and its northeastern section, is separated from the Great Sea by the southern island of Kokaral. The depth of this sea over the greater part of its extent averages 10 meters (maximum depth is 67 meters). The Little Sea Basin, into which water flows only from the Syr Darya, includes Saryshyanak, Butakovka, Shevchenko and other bays, with maximum depths varying from 13 to 28 meters. This sea should be formed independently and be separated from both the Western Great Sea and the Eastern Great Sea.

This plan for restoration and reconstruction of the Aral Sea envisions that the Western Great Sea which currently exists in the central portion of the Aral Sea (with an area of roughly 33,600 square meters [sic]) will be stabilized in perpetuity and kept at a level of 37-38 meters, which will save not less than 350 cubic kilometers of water each year. In order to maintain the annual water balance in the Western Great Sea continuously at this level a water supply between 29.5 and 32.6 cubic kilometers will be required.

The Eastern Great Sea will be formed between the levels of 42 and 53 meters and will cover an area of not less 16,100 square kilometers. In order to fill it to an average depth of 6-11 meters roughly 144.9 cubic kilometers of water will be required, with an annual water supply of 14.2-15.7 cubic kilometers of water required after filling.

The Eastern Great Sea will extend from the south of the Western Great Sea and along its eastern portion up to the Northern Great Sea. Along the entire length of the southwestern and northern shore of the Eastern Great Sea, roughly calculated at 250-400 kilometers or more, dikes 8-12 meters high will be erected, primarily along elevated portions of the desiccated Aral Sea floor. The most powerful modern Soviet land- and sea-based (or river-based) civil and military equipment or explosives, as well as the resources of foreign countries on a contractual basis, will be employed to build dikes and complete the preparatory excavation of the areas which will receive the waters of the Amu Darya and the Syr Darya.

The Northern Little Sea, which is planned to be at a level of 43-53 meters and have an area of 5,100 square kilometers, will be separated from the Western Great Sea and the Eastern Great Sea by a common or separate dike up to 12 meters high running from west to east across Kokaral Island. This sea's total water requirements will be not less than 50 cubic kilometers to fill and an annual water supply of 4.5-5.0 cubic kilometers.

Thus, as a result of implementation of radical water conservation reconstruction in the Aral Sea Basin the total surface area of the three sea will be 54,800 cubic kilometers [sic], which is 7,400 less than the previous area, and the water flow required to maintain the seas will decrease from 60.7 to 53.5 cubic kilometers. The area of islands and land area between seas will be 9,700 square kilometers instead of the 2,300 square kilometers which existed in the 1960's.

It would be appropriate to complete filling of the two seas (the Eastern Great Sea and the Northern Little Sea) with a volume of 195 cubic kilometers with subsequent stabilization of their surface level at 53 meters and maintenance of the Western Great Sea at a level of 37-38 meters within seven years, with an average annual inflow of not less than 76 cubic kilometers; following restoration of the Aral Sea within its new territory it will be necessary to ensure an annual water flow of between 48.2 cubic kilometers (not counting precipitation) and 53.5 cubic kilometers (with precipitation included).

Of the three seas to be created in the Aral Sea Basin the least saline will be the Northern Little Sea and the Eastern Great Sea, which will be the scene of intensive development of fish farming, muskrat raising and other promising types of commercial activity. The reconstruction will make it possible to process the mineral resources found on the desiccated Aral Sea floor (i.e. oil, natural gas, shales with above-normal concentrations of rare and expensive elements, building materials, limestone, coquina, etc.) using a rotating shift method and to restore and regularize freight and passenger shipping. Hydroelectric power could also be generated along the channels connecting each sea with the Western Great Sea.

The problem of restoring the Aral Sea is above all a problem of where to find water sources within the natural area in question, i.e. the "rectangle" and the agricultural complex which is based on it, primarily cotton production, the largest user of water from the Amu Darya and Syr Darya, which are fed mainly from mountain glaciers (or snowfields), precipitation and underground water.

Siberian rivers and the water of the Caspian Sea should not be used to preserve and restore the Aral Sea. Rechanneling of water is a very expensive proposition. The technical feasibility of doing this has not been determined, and its effects cannot be predicted. Construction of a Caspian-Aral canal is also risky. The Caspian Sea is located 28.5 meters below sea level, while the Aral Sea is

53 meters above sea level. Therefore supplying water to the Aral Sea from the Caspian Sea would be a very complex technical problem.

The primary advantage of the plan outlined above is the fact that a huge mass of water, 480 cubic kilometers, will be saved during filling of the Aral Sea following its reconstruction, with 7.2 cubic kilometers to be saved while still maintaining the necessary annual water supply under the new conditions. Practical realization of this

plan will make it possible to reduce capital investment by a factor of at least 2.3 and to cut the time frame for realization of efforts to restore the Aral Sea and its basins by a factor of two.

In order to ensure full realization of this plan it will be necessary to declare the decade of 1991-2000 a restorative period for the Aral Sea and its basins and to introduce a special economic regime in connection with this work.

REGIONAL AFFAIRS

Developments in EC Ecology Policymaking Reviewed

91WN0220B Vienna *INDUSTRIE in German*
19 Dec 90 pp 32-34

[Article by Manfred Kainz: "A 'Green' EC?—Concrete Preliminary Studies Submitted by European Communities in Recent Months Relative to EC-Wide Ecological Taxes and Environmental Control Assessments"]

[Text] The discussions taking place within Austria on tax policy measures for the protection of the environment have included, among other things, a plea for international agreement and an orientation to relevant EC policies. Now, in the past several months, EC organs have stepped up their activities in the area of ecological taxes.

Task Force Report

The point of departure for the latest environmental activities of the communities is the so-called: "Task Force Report on the Environment and the Internal Market: 1992—The Environmental Dimension." This study, commissioned by and prepared under the chairmanship of the EC Commission in 1989, not only examined the effects of the internal market on the environment but also contained proposals for an effective EC environmental policy. In the process, a great deal of attention was also given to the topic of "utilization of economic and fiscal instruments and stimulative mechanisms."

It was determined that "economic and market-related instruments such as environmental assessments are suitable means for insuring that the economic growth caused by the internal market does not run counter to ecological objectives. Economic incentives can help to steer the economic development in the direction of clean ecologies. If economic incentive systems are used in combination with governmental regulatory measures, they are capable of creating lasting stimuli to insure that emitters reduce the danger level of their pollutants and/or find new ways to minimize them." Economic incentives, the study found, are more flexible and more cost-effective than the general application of governmental regulations alone.

The report concludes further that "the individual member states should be given the right to levy taxes and/or assessments in order to achieve specific environmental policy objectives. The plans of the commission to eliminate tax barriers in the internal market should not rule out the utilization of taxation instruments for environmental policy purposes."

EC Council of Ministers

In November 1989, under the impact of this task force report, the EC Council of Ministers launched a new

initiative with respect to the selection of the environmental policy instrument to be used. In doing so, however, it was also reacting to increasing activities by individual member states to modify the existing environmental taxes or introduce new monetary assessments. The Council of Ministers emphasized, therefore, "that fiscal policy instruments can play an important role in influencing the conduct of economic entities with respect to environmental policies."

Based on this resolution, the Council of Ministers asked the commission "to examine the possibilities for applying economic and taxation instruments on behalf of environmental protection." Also with respect to the connection between energy policies and environmental protection, the council proposed to the commission that intervention possibilities of an economic and fiscal nature be looked into. These should take into consideration the demands of environmental, energy, and fiscal policies and should help to insure that, for the long term, energy prices will include the external costs of utilizing the environment.

Also at the informal meeting of the EC environmental ministers in April of this year, the "importance of economic and fiscal instruments for supporting the existing public order apparatus" was stressed. A similar line was pursued in the ministerial declaration of the environmental conference in Bergen in May 1990, which recommended a "wider utilization of economic instruments in combination with a regulatory framework." And finally, in June, the European Council, in its declaration of Dublin, included a chapter on fiscal measures in environmental policies, and at the same time called upon the commission to speed up its work in this area and to present concrete proposals by the end of the year for EC-wide implementation.

EC Commission

It was at the request of the council, therefore, that the commission, with the help also of a working group of experts from the member states, began working out a common concept. The points of departure in this undertaking were:

- Drawing up a master strategy in the instrument area;
- the development of guidelines for the employment of market economy instruments for the creation of an instrumental framework;
- leaving options open to individual states for the employment of regional and national instruments;
- the introduction of specific Community-wide instruments (for example, a carbon dioxide assessment).

The importance being attached to this topic by the EC is also evidenced by the number of agencies concerned therewith. In the EC Commission alone, in addition to the aforementioned working group, experts from the General Directorates II (Economics and Finances), III (Internal Market), IV (Competition), XI (Environmental Protection), XVII (Energy), and XXI (Indirect Taxes), are doing work in this area. As repeatedly emphasized by

the EC Commissioner for Environmental Protection, Carlo Ripa di Meana, the laws enacted by the Community are and will remain the basis for the environmental policies of the EC—if only for the reason that, in several of the member states, the only environmental legislation in existence is that which was and is being taken over from Community legislation. Although Community legislation must be rigidly adhered to in all states, it does not, in the opinion of the commissioner, suffice by itself.

For an ecological reorientation of Community policies, it will be necessary, in important sectors such as industry, energy, and agriculture, to work with economic instruments and incentives, the commissioner believes. This is necessary not only to promote environmentally friendly behavior, but also as a reaction to increased efforts by individual states to introduce national measures. "For if the Community itself does not act now," according to Ripa di Meana, "the completion of the internal market will be seriously threatened."

With respect to the wide range of possibilities available for the creation of economic-fiscal incentives, the environmental commissioner cited, as an example, a "carbon dioxide tax" as an important measure for the reduction of carbon dioxide emissions and for the accumulation of resources for Community environmental projects. Also mentioned by him in this connection was the special "taxation of environmentally harmful products, such as petroleum-based products, nonbiodegradable plastics, and pesticides, for example." Assessments and fees for emissions environmentally harmful to the air and water could be extended from the national to the Community level.

Ripa di Meana felt further that the utilization of variable tax rates could promote the consumption of environmentally friendly products and make the utilization of environmentally harmful products unattractive. "For a differentiation such as this, however," he qualifies his opinion, "an EC-wide framework would be necessary so as to preclude discriminatory taxation as well as competitive distortions and the erection of new barriers in the free movement of goods."

The working group of experts of the member states, working under the supervision of the commission, recently submitted the draft report entitled: "On the Utilization of Economic and Fiscal Instruments in EC Environmental Policy." The discussion topics suggested therein comprise a broad spectrum. Demanded as a global starting point is an EC-wide framework for a taxation of carbon dioxide emissions. For regional environmental problems, the development of an EC-wide framework for (waste) water assessments is proposed. For the Community's agrarian policy, the possible input taxation of fertilizers and pesticides is cited. Emission assessments, product assessments (on fuels, vehicles), or negotiable licenses should support the air purification measures currently in effect. As far as road traffic is concerned, the draft report mentions, among other

things, special taxes on vehicles, consumption taxes, and community road utilization fees. In the area of waste management, such instruments as deposit systems, a differentiated tax structure, and assessments on products should help to change the relative prices and thus contribute to the intensification of preventive activities and recycling measures.

The discussion of the draft report of the working group was also on the agenda at the meeting of the EC environmental ministers in Rome in September of this year. Since tax policy measures were basically acknowledged during this discussion to be effective means within the framework of the EC environmental policy, the EC Commission has been tasked with coming up with concrete proposals for a package of measures by the end of the year.

European Parliament

In the summer of this year, the committee for environmental problems in the European Parliament, during a "public hearing" on the subject, "Utilization of Economic and Fiscal Incentives for the Attainment of Environmental Policy Objectives," discussed a number of different proposals for environmental assessments and their implementation in the policies of the Community. The spectrum covered by these discussions ranged from national and EC-wide (primary) energy assessments, general emission fees, and an EC-wide carbon dioxide tax, to waste water assessments, distance- and weight-related taxes on highway traffic, an environmentally oriented graduation of excise taxes, increasing fuel taxes while at the same time revamping the vehicle tax system, and packaging taxes.

The following may be viewed as the core statements of these discussions:

- In view of the internal market, a Community-wide strategy should be considered with respect to assessments on specific environmentally harmful products.
- Energy assessments could be introduced at both the EC level and at the level of the individual states—without necessarily leading to competitive distortions if properly implemented.
- The market economy should be ecologically reoriented, but at the same time more market economics should be applied in environmental protection. Since the environment represents a limited resource and a "public property," it is necessary for the state, by means of fiscal measures, to control the determination of the "correct price" for its utilization (consumption, pollution), a price that reflects the "environmental costs."
- To gain the required incentive effect, the tax rates would have to be set at a high level and the ability to pass on the costs by burdening prices examined. To compensate, the simultaneous lowering of other forms of taxation or tax reductions in other economic sectors was encouraged.

- In addition, so as to gain greater acceptance by enterprises, more uniform international environmental controls should be established. Public laws should be combined and supplemented with economic incentive mechanisms and fiscal instruments, since these instruments can make up for distribution weaknesses inherent in the public law.

The conclusion of the hearing of experts was that fiscal measures can be meaningfully employed at the level of competence of the individual states as well as at the international and EC level. In those sectors in which harm to the environment is regionally limited (noise, waste), or when special assessments are needed to finance local tasks, as well as in those cases where assessments are the result of communal, regional, or national policies, decisions should be made on the level of competence of the individual state or region. The wide range of creative possibilities—which was also stressed in the task force report—should be put to good use. On the other hand, in cases of cross-border harm to the environment (carbon dioxide), when taking steps to influence general production conditions, when harmonizing indirect taxes, as well as when dealing with assessments having an effect on Community policies (trade, economic policies), environmentally oriented fiscal measures should be decided on at the EC level.

In view of the many discussion forums and “delegation mechanisms,” the demand made by Ripa di Meana on the occasion of an environmental conference held in Brussels in the summer of this year comes as no surprise: “We have now reached the point where such conferences become unproductive, a point at which talking must cease and concrete decisions must be arrived at.”

Nuclear Accident Risk in Region Seen High

91WN0220A Vienna DER STANDARD in German
12-13 Jan 91 p 20

[Article by Heinrich Mathis: “Chernobyl Is Everywhere: ‘Accident Risk Is Unacceptably High in the West As Well’”]

[Text] Vienna—Statistically, a nuclear catastrophe on the scale of Chernobyl can be expected every ten years. Of the 450 nuclear power plants in operation worldwide, 10 percent are completely outmoded and represent 90 percent of the overall risk. These potential atom bombs are by no means confined to the East. They exist just as well in the United States and in almost all European countries, including the FRG, which in the construction and refitting of atomic reactors likes to bring up the argument of technological leadership. Responsible for this are all the well-known manufacturers, from Siemens-KWU to Westinghouse and General Electric.

At the end of last year, the noted professional journal NUCLEAR NEWS published a report on a meeting of the International Advisory Committee on Nuclear Affairs, an informal club of leading security experts in atomic questions. At this meeting, the 57 members, with

a single dissenting vote, agreed that the currently existing accident risk is unacceptably high. Nine of every ten reactors do, to be sure, measure up to present-day safety standards. With the rest, however, the danger of a nuclear accident on the scale of Chernobyl is so likely that by the laws of probability the super-bang comes due every ten years.

The report of the journalist Simon Rippon is being taken seriously not only by nuclear opponents but also by the International Atomic Energy Agency (IAEA) in Vienna. “Rippon is one of the foremost journalistic experts in this field,” a spokesman for the IAEA told DER STANDARD.

At its last general meeting in November, the atomic agency decided on the inspection of 14 nuclear power plants viewed as especially hazardous in the East. The list includes Bohunice 1 and 2 in Slovakia just as it does Kozloduy 1 to 4 in Bulgaria, and Novovoronezhskiy 3 and 4 and Kola 1 to 4 in the Soviet Union. The Greifswald power plant in the former GDR was previously shut down. These are in all cases reactors of the Soviet type WWER, which the Austrian committee of experts, with respect to the inspection of Bohunice, has categorized as extremely hazardous because of brittleness of steel plates and welding seams in the reactor and inadequate emergency cooling systems and safety equipment.

Misgivings of the IAEA

The Austrians are not alone in this assessment. And so, Morris Rosen, a safety expert of the IAEA and thus most likely not an absolute opponent of atomic energy, entertains no illusions concerning the condition of the outmoded reactors in the East, and points out that the political situation could conceivably come in which all these plants would have to be closed.

The greater number of unsafe reactors are apparently located in the West, since a total of between 40 and 50 nuclear reactors are categorized as hazardous, but only 14 are to be inspected in the East. The IAEA responds evasively by pointing out that every country is itself responsible for the safety of its reactors. However, Western experts know exactly what reactors are included in the list of high-risk old facilities.

For the most part, it is the power plants the construction of which was commissioned in the mid-1960's and which were put into operation from the early to the mid-1970's that are the most difficult to shut down today, since as facilities which have largely been written off they are generally extraordinarily economical to run. The list of safety defects is strikingly reminiscent of those at Bohunice: A reactor container made of steel that has become brittle as a result of constant neutron bombardment, temperature fluctuations, and high pressure, and which can rupture at any time without telltale leaks beforehand, emergency cooling systems that in many cases are inadequate, and safety equipment that is not up to today's technological standards.

The pressurized water reactor in the German nuclear power plant at Stade in Lower Saxony, based on Westinghouse technology, exemplifies the effects of the embrittlement process, which took place at a much faster rate than was expected by the designers. An expert opinion prepared four years ago by Ilse Tweer, a materials expert from Hamburg, provides evidence, based on a sampling of materials from the reactor core, of the danger of a brittle fracture in the event of a malfunction-related cooling off of the reactor pressure tank. The state government of Lower Saxony is currently having a study conducted to determine whether continued operation of this facility is feasible.

Similar to those at Stade are the problems at the reactor of the same type at Borssele in the Netherlands. The second reactor in the Netherlands, located in Dodewaard, is a fossil built by General Electric in the year 1969. In the Spanish Santa Maria di Garonna, an old General Electric boiling water reactor has been in operation since 1971, and a similar model dating back to the stone age of reactor construction is operating at Muehleberg in Switzerland. In Doel in Belgium, two reactors built under license from Westinghouse in 1969 are still turning out electricity. An identical facility in Krsko in Yugoslavia is under fire because of technical defects and the danger of earthquakes. A similar reactor is located in Breznau in Switzerland.

In Great Britain, in conjunction with the privatization of the electricity industry, three graphite-moderated boiling water reactors jointly developed by the British and the French had to be taken over by a state-owned company, since the assumption of the risk and costs of their planned demolition could not reasonably be expected of the private investors. Similar facilities are repeatedly being placed into operation by the French military for the production of plutonium, whenever the "force de frappe" has a renewed need for new atomic bombs.

The only Western reactor without an emergency cooling system for a pipeline break was put into operation in 1968 in Obrigheim in the FRG. This first pressurized water reactor in the FRG, located on the Neckar river between Heilbronn and Mannheim, has been shut down since May but is to go back into operation.

Defects in the safety system and material fatigue are the areas of criticism, on the one hand, and design flaws, on the other. These charges are directed at the pressurized water reactors of the Zwentendorf type, developed by the German firms Siemens-KWU or AEG, of which five are still in operation in the FRG, the oldest of them in Wuergrass. Already during the discussions concerning Zwentendorf, experts voiced the opinion that the reactor vessel was at risk of exploding, since during further development following Wuergrass, possibly to get around American licenses, a plate-shaped rather than a hemispherical floor was constructed. As a result, the connecting welding seam runs precisely along the transition edge between wall and floor, in an area of uncontrollable bending stresses, according to Wolfgang

Kromp, of the Institute for Solid-State Physics at the University of Vienna. He is one of the leading materials scientists and a member of the Bohunice committee. The containers of the power plants are not designed to withstand an explosion in the reactor pressure vessel. Unlike Chernobyl, all power plants in the FRG are located in densely populated areas. They are, after all, located at such places as Brunsbüttel, Phillipsburg, Ohu on the Isar, or Krümmel near Hamburg.

EC Proposes 'Ecological' Product Labeling

91WN0205A Paris LE MONDE in French
19 Dec 90 p 12

[Article by Philippe Lemaitre: "EC To Institute an Ecological Label"]

[Text] Brussels (European Community)—The European Commission, which wishes to encourage the use of environmentally friendly products, has just proposed that the Twelve establish a single ecological label for the entire Community. Use of the label would be authorized by a panel of independent experts according to criteria temporarily set by the Commission and, later, once it has finally been established, by the European Environmental Agency.

According to Mr. Carlo Ripa di Meana, the European commissioner responsible for environmental issues, the first category of products to which ecological labeling would apply will include detergents, paints and other chemical products used in construction, washing machines, and lawn mowers.

The logo informing the public that a product has been judged of interest will be the logo of the European Year of the Environment: the double symbol of a half-daisy joined to a cog wheel, encircled by the 12 stars of Europe. Generic products, unlabeled products, and brand name products will be authorized to use the green label as long as they meet the criteria set by the Commission or the Agency.

At present, Germany is the only member state with an ecological labeling system. However, several other EC countries, such as France, Great Britain, Ireland, Denmark, and the Netherlands, are preparing to follow suit. Brussels is proposing Community-level action precisely to avoid the market fragmentation this situation could create.

According to Mr. Ripa di Meana, for the first five years the Community label would coexist with the German "blue angel" label. After this break-in period, the situation would be reassessed, and if the experience appeared positive, the Community label could become the exclusive label. The commissioner indicated that the criteria advocated by the Commission were stricter than those used for the "blue angel" label.

EC Backs Clean Car

91WN0205B Paris LES ECHOS in French
24 Dec 90 p 6

[Article by Jacques Docquier: "The Twelve Impose the Clean Car"; first sentence is LES ECHOS lead]

[Text] Accused of having neglected the environment during its presidency of the EC, Italy has countered these criticisms by having the EC ministers approve a series of important directives on the automobile.

Brussels—The European environmental ministers have decided that, beginning in 1993, medium and large displacement engines will be required to meet antipollution standards as strict as those already in force for small capacity engines. As a result, when the single market goes into effect, the fleet of cars produced and operating in the EC will be cleaner. By the end of 1992, the Commission will issue new proposals strengthening these standards in light of technological advances made in the interim.

According to Carlo Ripa di Meana, the European commissioner responsible for environmental issues, "These decisions allow Europe to make up for the time lost by the automobile industry," which, he said, "is positioning itself on the leading edge of the world market." The commissioner added that he now intends "to tackle the clean truck" by submitting standards for large trucks, before going on to consumption and speed limit problems.

The new standards for "acceptance" (approval of new models) have been set at 2.72 g/km for carbon monoxide emissions, 0.97 g/km for hydrocarbon and nitrogen oxide emissions, and 0.14 g/km for particle emissions. For "production compliance," these standards are 3.16 g/km, 1.13 g/km, and 0.18 g/km, respectively. They are effective as of 1 July 1992 for new models and 31 December 1992 for new cars. Given the current state of the art, they will mean that automobile manufacturers will be required to equip cars that have an engine capacity of over 1,400 cm³ with three-way catalytic converters.

The ministers also agreed that, by 31 December 1993, they will take a majority decision on the stricter standards proposed by the European Commission one year earlier, in order for these standards to be able to go into effect 1 January 1996. Effective immediately, member states wishing to do so may use tax incentives to encourage the purchase of clean cars that meet 1993 standards.

EC Announces CFC Countermeasures

91WN0205C Paris LES ECHOS in French
24 Dec 90 p 6

[Article by Jacques Docquier: "EC To Eliminate CFC's"]

[Text] The European Council has committed itself to eliminating the CFC's (chlorofluorocarbons) that are depleting the earth's ozone layer by 1 July 1997. Already last June, the EC had ratified the amended Montreal protocol providing for the elimination of CFC's by the year 2000. As of 1 July 1995, use of these substances will be cut by 50 percent. Lastly, France has asked the Commission to draw up a CFC tax plan to finance the recovery, recycling, and destruction of these substances, which, while for all practical purposes no longer used in aerosols, are still of importance in refrigeration equipment.

The ministers also approved a new "hazardous wastes" directive defining these wastes more precisely than the first framework regulation last June. Authorization procedures are stipulated for companies processing hazardous wastes, with authorization still optional for those that collect and transport them.

Lastly, in order to protect the environment in the Mediterranean region, the Council has decided to launch a specific program dubbed "MEDSPA" [expansion not given]. The program has a budget of 25 million ecus (175 million francs) for 1991 and 1992 and, in 10 years, should contribute to improving the environment of one of the Community's most polluted regions.

FRANCE

Nitrates in Water in Aftermath of Rain

91WN0214A Paris LIBERATION in French 11 Jan 91
p 38

[Article by Philippe Dossal: "After the Rain, Nitrates in the Drinking Water"—first paragraph is LIBERATION introduction]

[Text] The recent rains in the west of the country have leached the fertilizer-laden ground. The sharp rise in drinking water nitrate levels has led over 200 communes in Brittany, Normandy, and the Loire country to advise against its consumption by pregnant women and nursing children.

Nantes—Nitrates have made a strong comeback recently in western France. Since Wednesday, consumption of drinking water by pregnant women and nursing children is being discouraged in over 200 communes in Brittany, Normandy, and the Loire country. This sharp increase in tap water nitrate levels, which has been faster and bigger than last year, is the result of the recent series of rains that has soaked the region after several months of drought, leaching soils laden with nitrogen fertilizers. The first to be affected are the Mayenne and Maine-et-Loire departments, where levels in some communes exceed 100 milligrams per liter, twice the maximum dose set by the European directive.

Brittany, which traditionally experiences a slight lag, is readying itself for record levels again this year. Already,

70 communes in the Finistere Department have exceeded the limit of the 50 milligrams per liter tolerated by pregnant women and nursing children. (Fetuses and babies do not have the enzymes in their stomachs that break down nitrates. As a result, their red corpuscles may not be able to fix oxygen.) Despite the recent startup of four denitration plants in the department, environmental health officials are openly concerned. "Whatever happens, we will be facing another increase," an engineer explained. "In addition to the leaching of the soil, we are experiencing the impact of 10-year-old groundwaters." Indeed, a portion of the nitrates found in drinking water as of January 1991 comes from fertilizers spread over the past 10 or 15 years. Thirty-six water sources have had to be abandoned as a result of pollution, and the list will continue to grow. The temporary solution of mixing water makes it possible to lower the highest nitrate levels in some cases. In both the Finistere and the Cotes-d'Armor departments, the application of liquid manure from industrial ranching operations combines with chemical fertilizers to produce extremely high soil nitrogen levels.

In Segre, in the Maine-et-Loire Department, there is an out-and-out red alert. Not only are the exposed populations cautioned against the tap water, but, as of Tuesday, the entire commune is being asked to drink bottled water. The nitrate level has reached 114 milligrams per liter. The pumping station of this small town on the Oudon River, a tributary of the Mayenne, receives runoff from the many ranches upstream. Municipal

equipment, while sophisticated (water is treated by ionization), is unable to filter out nitrates. The town government has had to hire a tank truck to supply the residents. As in Brittany, the only solution is to mix water from several sources. Several specialists are currently working on connecting the local system with a neighboring system.

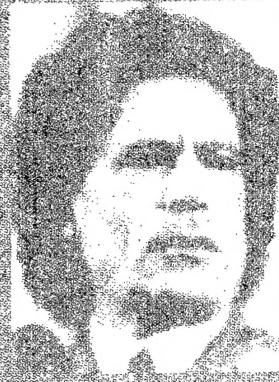
The atmosphere appears calmer in the Loire-Atlantique Department. While the prefecture did publish a list yesterday of 20 communes in which persons with digestive problems were cautioned against drinking the tap water, observed concentrations are currently no higher than last year. Still, in the north of the department, where the water comes from the Vilaine River, nitrate levels on 9 January exceeded 85 mg per liter. "It is hard to say what turn things will take," an environmental health official said. "It all depends on precipitation intensities. We will see spectacular surges if the rains remain steady. If it drizzles, concentrations will be lower, but they will last longer."

In any case, in each department, the engineers of the various sanitation offices will be continuing their daily sampling and analysis. Levels can in fact vary perceptibly from one day to the next. On 4 January, the water from the Loire River at La Fleche registered 26 milligrams of nitrate per liter. Four days later, the concentration had tripled.

In theory, these levels are posted daily on town hall doors, and each prefecture regularly publishes the results of analyses made by the departmental sanitary services.

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